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IRON TRADE REVIEW

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CLEVELAND, O., APRIL 5, 1928

ALLOY STEEL

A NEW MILL *dedicated to* SERVICE and ACCURACY

Illinois Steel Company
Chicago

experience

THE building of thousands of power shovels, cranes and draglines during the past 32 years has given Thew a background of practical experience that has resulted in major improvements and inventions of great benefit to all users of material handling machines.

THE THEW SHOVEL COMPANY
LORAIN, OHIO

Gasoline or Electric Powered
Shovels • Cranes • Draglines • Backdiggers

THEW
LORAIN 60 AND 75

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Volume 82
Number 14

IRON TRADE REVIEW
Established 1883

Cleveland, O.
April 5, 1928

1 The Problem

2 The Inquiry

3 The Plan

4 The Problem Solved

Solving Customers' *PROBLEMS Leads to MORE SALES*

Designing Small Fixtures To Meet Special Requirements Frequently Brings Important Orders for Equipment

By H. R. Simonds

¶ *An article of practical value in sales development, showing how a machine builder capitalizes his service department to the utmost.*

MACHINE tool builders have been discussing for many years the problem of adequate compensation for service to customers. On large special machines there is almost always a heavy service expense, either before the machine is sold or after it has been put in place. Many companies regard this expense as a sales item. They strike an average of cost over a period of time and divide this by the number of machines sold. In this way they secure a service item to be added to the sale price. Other companies charge directly for any service performed after a machine has been sold.

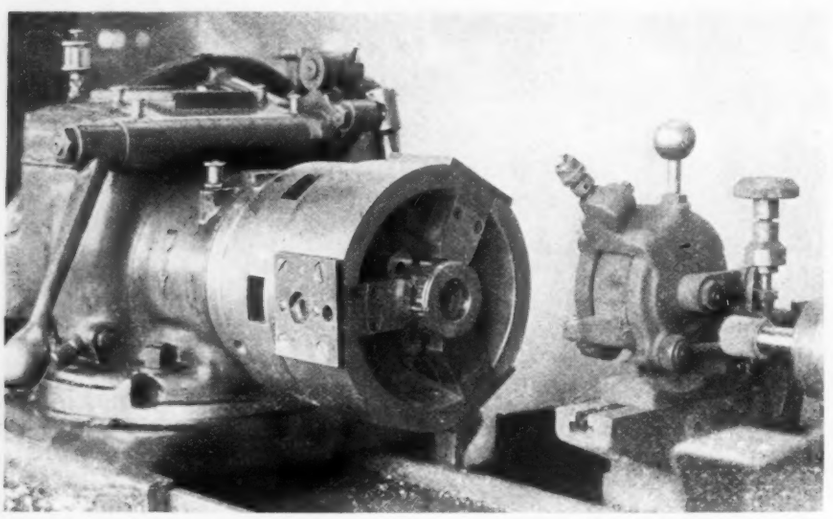
Because machine tools frequently are sold on the basis of customers' production, the question of what to charge for and how to sell a production machine is difficult to answer. The toolmaker must assume many of the designing problems of the manufacturer, and

must solve the problems by the use of his standard machines, or with modifications and special fixtures. An automobile manufacturer wants to make small gears to meet certain specifications. Instead of buying the gears in the open market he may prefer to purchase a machine to make them. The toolmaker sometimes agrees to furnish the gears at a certain price and in stated quantities. He specifies in his contract that his machine must be used, and as he directs. But he is forced to use the labor furnished by the customer. The contract price for the gears really is the price of the machine. The machine toolmaker agrees to refund the price and take back the equipment if the conditions of the contract are not met.

This method of selling requires elaborate designing departments. The work of such a department may be judged by considering the case of a production job and following it through from start to finish. The Heald Machine Co., Worcester, Mass., manufacturer of grinding machines and magnetic chucks, operates a designing or customers' service department of unusual size and interest. This department has about 25 designers constantly at work on the problems of other manufacturers. A machine shop for setting up new fixtures in working out special problems is set aside for use by this department.

This department is a clearing house for hundreds of problems. The work comes to it in the form of samples and rough specifications. The head of the department first secures enough definite information to make designing practicable. He then turns the problem over to the designer he thinks best equipped to handle it. One designer is most familiar with gear problems, another with piston rings, another with electric motor parts, and so on. A miscellaneous group of pieces taken at random from the active list in the Heald service designing department is shown in the first illustration, page 865. The head of the department is a man of considerable tact, as well as designing ability.

He points out that in nine cases out of ten his chief difficulty is to get all of the information necessary for making the proper design. For one reason or another manufacturers are reluctant to explain fully the problem they face. They send in a piece and ask that it be duplicated exactly. If the toolmaker takes this statement as final he is nearly always beaten. He has to go back repeatedly to the manufacturer to find out what the piece is used for and how it is used. After studying the problem from the toolbuilder's viewpoint he often is able to modify the design without altering the operation or usefulness of the piece. Sometimes he is able to effect a marked saving in production cost, as high as 50 to 100 per cent.



A sliding jaw collet chuck with roll cages holds the gear by pitch line control. By interchangeable jaws and proper roll cages, a variety of sizes of gears can be held in this same chuck

A small ring gear was sent in recently with specifications calling for grinding at the base of each tooth. This presented an almost impossible problem for a production job. No grinding wheel could be made to grind the base of all the teeth at one time. Therefore, to follow out strictly the customer's specifications would require a slow indexing process. The customer showed the usual reluctance to give out any further information. In this case, however, the quantity was sufficiently large to warrant the toolmaker in sending a representative to the customer's plant. There he was given all the information. The result was that he returned to his shop, and within a few days had designed a new gear with wider teeth and the bearing, or ground surface, on the upper part of the tooth rather than the base. This made it possible to grind the teeth all at one time with a simple wheel and at a rate fully ten times as rapid as any process which had previously been devised for grinding at the base of the teeth. The result was an order for a machine.

More frequently machine tools are sold as the result of designing special fixtures. The actual grinding process in most cases has already attained a speed which it is inadvisable to increase. Lost motion, therefore, comes in the changing from one piece to another, the setup or chucking time. Automatic fixtures are used extensively to overcome this. When automatic operation is not suitable it usually is possible to design auxiliary holders or fixture parts which greatly speed up manual operation. An example of this is the familiar loose pin ring for quickly and accurately chucking gears.

The ring contains three pins, each to fit snugly and accurately at the pitch line between two teeth. The chuck jaws come up against the back side of these pins and thus firmly hold the gear, centered according to its pitch diameter. Many modifications of this principle for holding gears and other similar pieces have been used.

Frequently a fixture is designed so that an irregular piece may be put into a circular sleeve before being inserted in the chuck. The operator then is able to place the irregular work into the sleeve during grinding without losing any time. When the grinding of one piece has been finished he takes it and its holding sleeve out of the chuck, quickly puts the next piece with its sleeve in the chuck, starts his grinding and then at leisure takes the piece which has been ground out of the sleeve, inserts a new piece and is ready for the next operation. Such a plan is followed in making the small drive gear of an automobile as shown in an accompanying illustration.

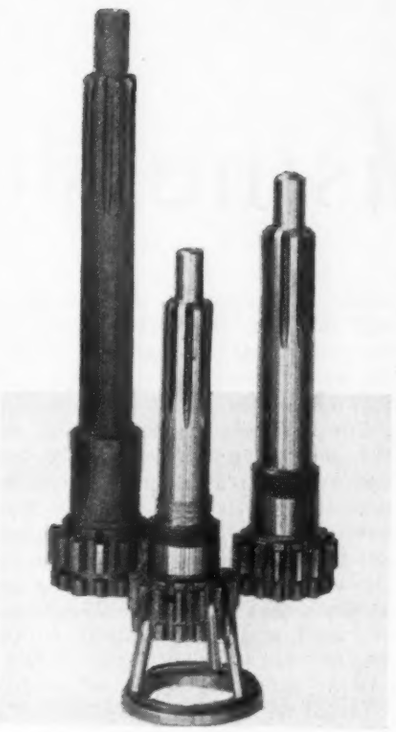
The specific problem with this gear was the automatic grinding of a blind hole. The gear which is of irregular shape is first inserted in a special bushing which fits over the large shoulder near the gear proper. This bushing steadies the forward

or larger end of the gear. Another bushing placed in the spindle locates the small end of the shaft. A sliding jaw collet chuck with roll cages holds the gear by pitch line control in the same manner as described for the pin rings.

This drive gear was sent in some months ago with a request for an estimate on production time. The service designing department sent back a form requesting more detailed information. The data was returned with a blue print. The designing department then worked out the method of chucking, and by actual operation determined the wheel best suited for the grinding and the approximate rate of production. All this was sent to the customer, with the usual guarantee. The result was the purchase of machine and fixtures.

Then followed a demonstration. The machine tool builder sent a representative to the plant of the customer and kept him there until operators in the employ of the customer were able to show a satisfactory production rate. In this case the preliminary estimate made by the Heald company was 80 gears ground per hour. With the machine in actual production, from 90 to 95 per hour were turned out.

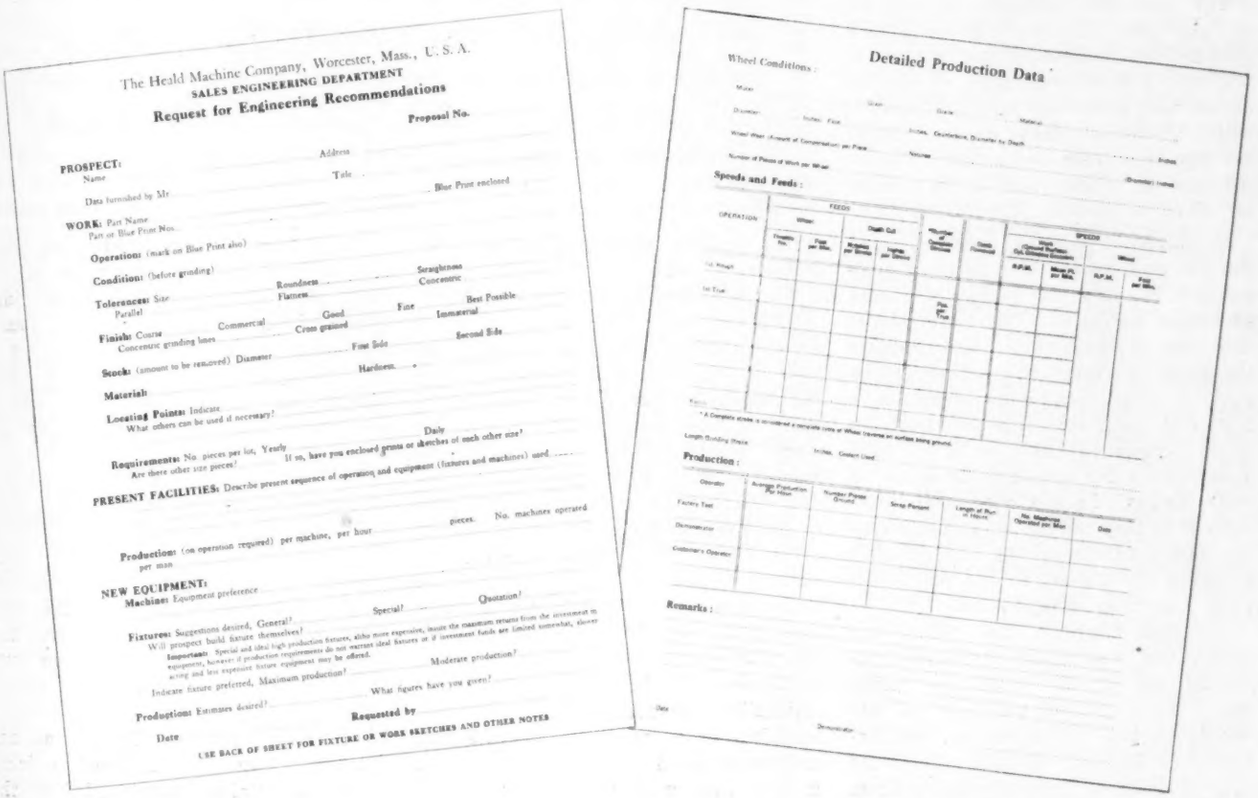
When regular production work at the customer's plant is under satisfactory control a detailed production data sheet is carefully filled in for the files of the Heald company. This sheet contains information covering the whole operation. Similar sheets gradually become of great importance in future designing and estimating.



By the use of special fixtures a blind hole is ground in these irregular gears at the rate of 90 to 95 an hour.

Another example of the work of the service department is a cylinder for a small gas engine. The manufacturers of the engine were anxious to cut down friction and at the same time secure a maximum pulling power on low consumption of gas and oil.

At the time of the investigation the cylinder manufacturer was boring and reaming the cylinders and doing a good job. At the request of the Heald service department six cylinders were sent to be ground and tested in comparison with others which had been bored and reamed. The cylinders were set up and ground, different grades and different wheels were tried and every detail was thoroughly investigated before a report was submitted. The final report was that a cylinder could be ground so as to produce a surface without any running in, equivalent to the surface of a reamed cylinder after it had been run in from eight to 20 hours. The cylinder manufacturer ordered two machines without waiting for further investigation. Continuing the service, the Heald company's engineer designed a jig for quick loading and unloading of the cylinders. The result is lower production cost for the engine manufacturer.



The Heald Machine Company, Worcester, Mass., U. S. A.
SALES ENGINEERING DEPARTMENT
Request for Engineering Recommendations
Proposal No.

PROSPECT: Name ... Address ... Title ...
Data furnished by Mr. ... Blue Print enclosed
WORK: Part Name ... Part or Blue Print Nos. ...
Operation: (mark on Blue Print also)
Condition: (before grinding) ... Straightness ...
Tolerances: Size ... Roundness ... Concentric ... Parallel ... Flatness ... Best Possible
Finish: Coarse ... Commercial ... Good ... Fine ... Immaterial ... Concentric grinding lines ... Cross grained ...
Stock: (amount to be removed) Diameter ... Fine Side ... Second Side ... Hardness ...
Material:
Locating Points: Indicate ... What others can be used if necessary?
Requirements: No. pieces per lot, Yearly ... Daily ... Are there other size pieces? ... If so, have you enclosed prints or sketches of each other size?
PRESENT FACILITIES: Describe present sequence of operation and equipment (fixtures and machines) used ...
Production: (on operation required) per machine, per hour ... pieces. No. machines operated per man ...
NEW EQUIPMENT:
Machine: Equipment preference ...
Fixtures: Suggestions desired, General? ... Special? ... Quotation? ... Will prospect build fixture themselves? ...
Important: Special and ideal high production fixtures, altho more expensive, insure the maximum returns from the investment in equipment, however if production requirements do not warrant ideal fixtures or if investment funds are limited somewhat, slower acting and less expensive fixture equipment may be offered.
Indicate fixture preferred, Maximum production? ... Moderate production? ...
Productions: Estimates desired? ... What figures have you given? ...
Date ... Requested by ...
USE BACK OF SHEET FOR FIXTURE OR WORK SKETCHES AND OTHER NOTES

Detailed Production Data

Wheel Conditions:
Make ... Grade ... Grade ... Material ...
Diameter ... Inches. Face ... Inches. Counterbore, Diameter to Depth ...
Wheel Other (Amount of Compensation) on Face ... Recess ... Inches
Number of Pieces of Work per Wheel ... Diameter Inches
Speeds and Feeds:

OPERATION	FEEDS: Wheel: Traverse Per ...	FEEDS: Wheel: Feed per Min.	FEEDS: Work: Revolutions per Min.	FEEDS: Work: Traverse per Minute	Allowance for Operation Minutes	Coats Compound	SPEEDS: Work: Surface Feet per Min.	SPEEDS: Work: R.P.M.	SPEEDS: Wheel: R.P.M.	SPEEDS: Wheel: Feet per Min.
1st Wheel										
1st Face										

Per Cent Face
* A Complete Grade is as outlined in Complete Data on Wheel Grades on surface being ground.
Length Grinding Stroke ... Inches. Coolant Used ...
Production:

Operator	Average Production Per Hour	Number Pieces Ground	Scrap Percent	Length of Run in Hours	No. Machines Operated per Man	Date
Factory Test						
Demonstrator						
Customer's Operator						

Remarks:
Date ... Demonstrator ...

Full information concerning the use and description of the piece to be ground is the first requirement of successful fixture designing. When a special fixture is put in service, a complete record of production, including description of wheels, speeds and all other data is kept on a special form.

CAN Business Benefit

CONSIDERATION will be given in this article to some of the competitive moves made in the sale of the metalworking machinery as described in the preceding article. It will be recalled that a new machine was brought to this country from Europe in 1905 which made possible a certain important metalworking operation not used previously in the United States. Twenty-two years have elapsed since the equipment was introduced into the country. At least 20 competitors have entered and been pushed out of the field of supplying the equipment. Three of the original competitors who started out in opposition to the European equipment remain in the field. They rank first, second and third in the number of outfits sold. There are 15 competitors all told in the field the day this is written, with rumors of several more about to enter. The European competitor has long since passed out of the picture.

The question naturally arises as to why the European group which brought the equipment to this country and did so well with it at the outset was unable to hold the leadership. Obviously, they did not foresee the inevitable onslaught of competition, or if they saw it they made no move to combat it.

No blunder is more common than the one they made. The germ of competition is alive in every new and profitable business. The more profitable the business, the more rapidly the germ develops. The effort on the part of other people to share in a new and profitable kind of business is as certain to come as if it were governed by the operation of a law of mathematics. In the case under discussion it may safely be assumed that the European competitor had no wish to share the profits of his enterprise with American competitors.

The fact that he did share the profits and was finally crowded completely out of the field by them, would seem to indicate that he was unable to take advantage of the opportunity he had created. He could not, of course, prevent others from entering the field but had he displayed a knowledge of competitive combat he could have prevented his American competitors from eliminating him from the field and preventing him from earning any profits. He knew everything about his business except the art of self defense.

The American competitor who won the dominating position in the field and kept that position is interesting because it is evident that he must have employed good competitive strategy to have accomplished what he did. He entered the field an exceedingly weak contender and emerged the strongest of all the contestants. Obviously, he must have handled his forces to good advantage to have accomplished what he did.

His development of a new machine in 1914 cannot be looked on as a decisive factor, although it might appear to be since it marked the turning point in his career. The difficulty at this time was not that the work could not be done with the machines offered on the market, but that the matter had never been put to prospective purchasers in such light as to make them want to make the machines and process successful on their own responsibility. Up to this time the prospective purchaser's own ingenuity had not been enlisted in the struggle to make the process commercially successful. While the new machines were easier to operate and craftsmen could learn to do the work in less time with them, the previous machines could have been operated, so that this factor cannot be looked on as decisive. In addition to this, few purchasers knew anything about any machine, so that there was no basis of comparison.

The plan of renting the equipment to the prospective purchaser that he might demonstrate its utility was the policy which proved to be a decisive factor in the contest. The prospective purchaser liked this way of doing it. Subsequent events showed that in many cases he preferred to pay a rental charge on the equipment during the experimental period rather than accept equipment for free use from another competitor.

THIS is the seventh article of a series on the competitive principles involved in modern business enterprise to be published in Iron Trade Review. A specific case of the introduction of a new metalworking machine from Europe, the subsequent development of similar machines in this country, and the competitive battle that was waged is discussed in this article. The next, and final article of the series, will be on the subject "Breaking a Deadlock in Competition."

The second element of strength was derived from the men who spent all of their time studying and developing new applications of the process. These men soon were better able to serve the interest of the prospective customer than their competitors' salesmen, who had spent little time in study.

The two elements just described, the rental plan and the specialists to operate the machines, were the decisive factors in the struggle. The third element of working with the operators insured continuation of the success. The strategy rested on the secure foundation of service to the purchaser of greatest value. The organization developed morale and strength by continued success. It was an advancing army. It advanced quickly because specialists were added to the staff as rapidly as they could be developed and put into the field.

A third element of strength was

FROM

Principles of War

Will Fundamental Rules of Combat Serve Manufacturers in Their Struggle with Competition? Strategy of Napoleon and Foch Has Application in Industry

By Robert E. Kinkead

developed as a result of the successful use of the two elements previously described; namely, financial strength. While the European competitor had taken the profits out of his business as fast as they accumulated, the American competitor used his profits for three things:

1. To further improve his equipment and reduce its manufacturing cost.

2. To build up a substantial reserve.

3. To carry out a national advertising campaign with the end in view of definitely fixing his leadership before the public.

It may be stated at this point that the profits were very large by virtue of the success of the enterprise. Competitive effort could not pull down the price for the reason that competition was not a limiting factor in the growth of the enterprise. The power and extent of competition always determines whether or not profits are possible. Assuming that competitive effort is sufficiently weak to make profits possible, management either earns or fails to earn profits depending upon its prudence and judgment. In this case the management actually put large profits into the treasury.

We may now briefly examine the cause of weakness among the remainder of the American competitors. From 1914 to 1922 the real causes of the dominating competitor's strength were never understood. This statement appears to be safe on the general assumption that had the causes of the dominating factor's prosperity been understood his policies would have been copied. Every other feature that was not of decisive importance was copied.

No other conclusion can be reached than that the opposing forces did not realize what was beating them. They tried everything except the execution of the very policies which made the one competitor the dominating factor in the market. These competitors' "Intelligence departments" failed to function. They were as blind as an army which has no department or military intelligence. They could not locate the enemy or discover the means by which he was so tremendously effective.

Now we come to the present phase of the struggle in which the dominating factor still dominates, but by a steadily decreasing margin. In the interest of economy and maintenance of profits he has eliminated his organization of specialists and handles the sale of equipment through salesmen who sell other equipment as well. To offset this he has reduced the manufacturing cost of his equipment steadily. He has developed an accessory and parts business.

He has tremendous momentum due to having more users of his equipment than any other two or three competitors. The moral force back of the enterprise has largely been lost. His service to his prospective customer does not differ in any important respect to the service offered by his competitor. The process has practically been accepted as a standard method of doing the work. More than 80 per cent of the possible large users of the process have probably bought and are using equipment. As additional needs arise the purchaser looks around to see what each competitor has to offer.

These conditions have brought about the leveling off process by which the dominating factor in the field is being pulled down to a status more nearly equal to the status of his competitors. Conversely, the competitors who have been able to weather the storm are now coming into business of increasing volume by virtue of the fact that they have been able to stay in the field. Competition is bitter because the power of the competitors is more nearly equal. The price of the equipment becomes to a greater degree the determining factor in its purchase. The tendency is for the profits to steadily decline. Under such stabilized conditions profits always decline.

An interesting field of speculation lies in the direction of considering what may be done to break the deadlock. Similar deadlocks exist in many industries. In the field of war, an analogous condition existed in the World war early in 1917 in the western front. Neither side could win decisively over the other and trench warfare became the order of the day. Equilibrium had been reached with both sides becoming weaker at about the same rate. New leadership, additional forces and new strategy broke the deadlock and gave the allied armies victory. In deadlocked competitive struggles, new leadership, additional forces and new strategy are used to turn the tide and bring a decision.

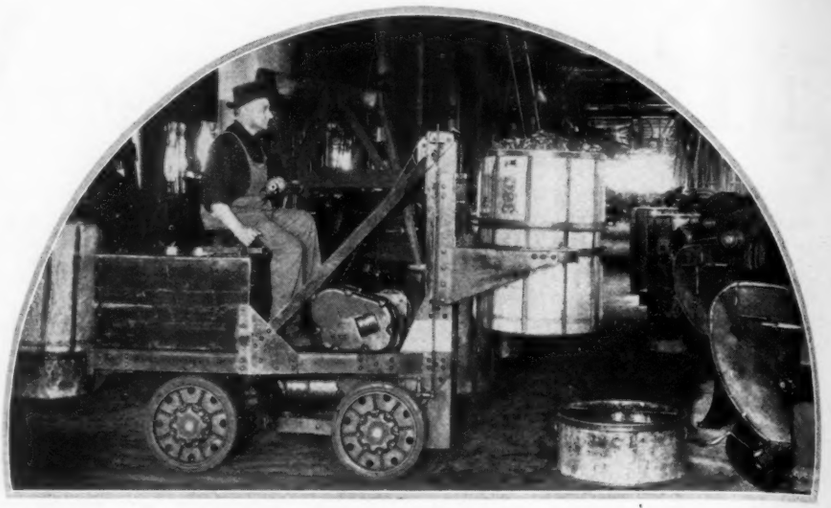
(*To be continued*)

Drills Manganese Steel

Although it always has been considered more or less impractical to drill or machine high manganese steel, the Morse Twist Drill & Machine Co., New Bedford, Mass., announces that with the advent of a new cobalt steel recently brought to its attention it has been able to drill successfully railroad frogs with a chemical content of 1.08 per cent carbon, 10.04 per cent manganese and having a brinell hardness of 207-217. The drill was of special structure to withstand extreme torque and point pressure. On one grind it was possible to drill nine holes 1½ inches deep through the frog. The company now manufactures drills for this purpose.

Trucks Facilitate Handling Operations in Machine Shops

Electric Equipment Adapted To Work in Process



Tote Can Carriers Give Maximum Speed, Minimum Cost

BECAUSE practically every machine shop necessarily turns over a considerable tonnage of material, and since in average machine shop practice it is estimated that the average unit produced requires handling from 10 to 15 times, the industry is one in which electric trucks have been adopted extensively.

Probably no single type of storage battery handling equipment meets these difficulties more directly and makes possible greater savings in most plants than the crane truck. Where castings and forgings weighing up to 2 tons have to be moved from storage to machines, and from machine to machine in process and thence to assembly and to cars, this equipment makes possible an ideal method of handling. Where parts are small they may better be placed in box containers, and handled either by lift truck or by crane trucks.

Where the assembled and finished product ordinarily would require a crew for loading due to its weight or awkward shape, the crane truck can pick up the load from the floor or bench, load it into the truck platform, drive into the freight car, and place it in proper shipping position.

Throughout the complete operation of handling from storage bins or yard to final shipping of the material, only one man per truck unit is required because the crane is his helper.

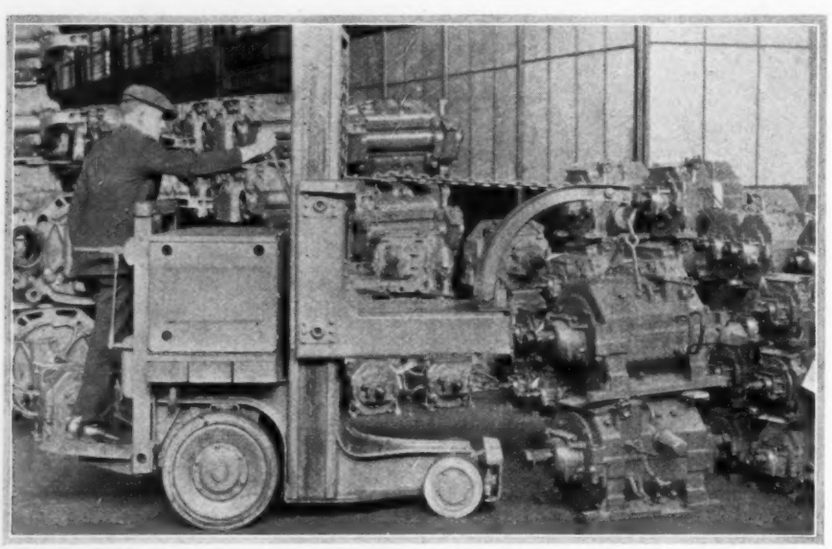
Parts that exceed the capacity of the crane truck can be handled by overhead cranes. Ordinarily the capacity of overhead equipment can be definitely increased by arranging handling operations in such a manner that the travelers are assigned only to heavy jobs, making it unnecessary to waste time moving lighter parts which power trucks are suited to move. The intra-department handling of all these parts, both light and heavy, is greatly facilitated by the use of heavy trailers and by employing the crane truck for motive power instead of the transfer car.

ABSTRACT by permission from, "Profitable Application of Electric Industrial Trucks and Tractors in Industry," published by the Society for Electrical Development Inc. The booklet was edited by H. J. Payne, survey committee, American Society of Mechanical Engineers.

Realizing that changes of transportation methods are best made by slow degrees, one company manufacturing refrigerating machinery purchased a single truck, of the heavy-utility type, six years ago, and at intervals of two years, new trucks of the modified-crane and light-utility type have been added.

At this point operating conditions are far from ideal. The layout of the various buildings is not modern, the elevators are small, the roadways are poorly paved and the aisles in the shops are extremely narrow. Buildings are situated on both sides of a private roadway, about 1000 feet long and all departments are accessible from this avenue, so in the course of every haul, the trucks of "tractors" as they are inaccurately called, use this artery.

To keep each department supplied with rolling equipment, either truck or trailer as the need arises, a signal system comparable to that used for regulating traffic on Fifth avenue in New York has been installed. Three lights, red, green and white are placed outside of the departments, and when need arises for moving, the signal



Crane trucks are particularly adapted to problems of machine shop haulage

is lighted, attracting the attention of tractor man as he crosses the roadway. In this way two useful objects are attained; prompt service is made possible and the idle time for the tractors is eliminated. The trailer equipment consists of eight 3-ton and of three 5-ton units substantially built, so that a load larger than their rated capacity can be hauled. Heavy castings and crates are carried from one shop to another or to the shipping department. The load-carrying trucks at this plant are used as tractors. On account of the difficult turns necessary within the plant, four wheel steer is standard, and to meet the paving condition, in some spots muddy and rough, wide tires are used.

The upkeep and repairs are found to be low. Trucks purchased six years ago have not required battery replacement, and for lubrication, spare parts and repairs the total cost is under $200 per year, per truck. In another plant, conducting similar work on a larger scale, accurate cost records show that a net saving of 80 per cent has been effected by the use of electric-industrial trucks, as against manual methods.

The services rendered by the light utility straight platform truck are of value particularly in the machine shop which is located on the second floor of an old building. The aisles have a limited clearance, the elevators are small and some of the curves appear impossible, yet, rapid, accurate delivery and pick-ups are made for each worker.

In bolt, rivet, automobile sundry and small hardware manufacture, need arises for handling material in tote cans, frequently at high speed. Tote cans can, of course, be placed on a trailer or on the platform of a standard truck either by hand, or by a built-on crane.

In a plant where a comparatively small amount of tote can handling is necessary—this material happens to be steel chips—a crane truck is

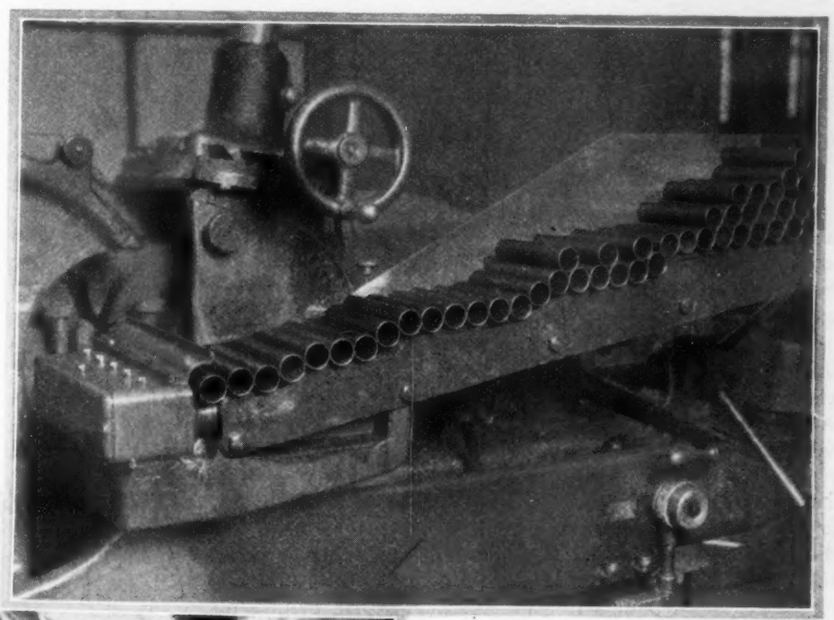
(*Concluded on Page* 878)

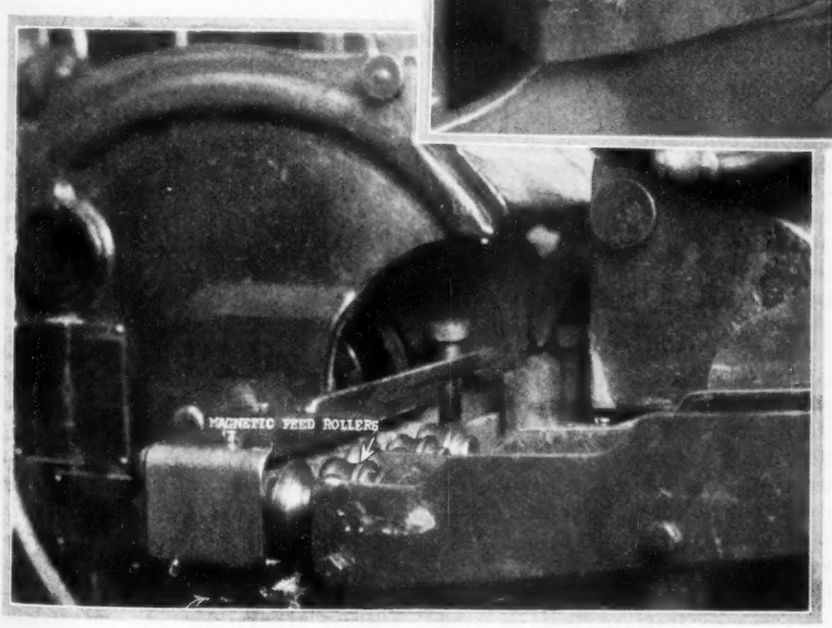
Feeding Steel Tubes to Centerless Grinder

ONE of the outgrowths of mass production is the development of special machinery to perform certain fixed operations more or less automatically. Discussing this subject in a paper presented before the machine shop practice meeting conducted in Chicago, March 14, by the local section of the American Society of Mechanical Engineers, H. L. Blood, chief of the machine design division, Western Electric Co., Chicago, described a number of interesting machines devised by that company and illustrating principals of broad application.

Among the devices mentioned was an ingenious mechanism for feeding steel tubes into a centerless grinder, as is shown in the upper-right illustration. Tubes are stacked in an inclined rack with a series of steps which keep the tubes parallel as they roll down the incline, and also have the effect of preventing any of the tubes from being carried along the top of others. The tubes roll one at a time upon a series of grooved rollers which are driven by power derived from one of the shafts of the grinder.

As the weight of the tubes is not sufficient to provide the traction necessary for feeding them into the grinder, the rollers, which are soft steel are mounted on permanently magnetized studs. The frame which supports the studs is of bronze, and the studs are connected at the end opposite the rollers by a bar of soft steel. The studs are magnetized in such a way that alternate rollers are of different polarity. When a tube bridges the air gap between two adjacent rollers, it completes the magnetic circuit, and the resulting traction between the tube and rollers is ample to feed the tube into the grinder. The arrangement of the rollers may be seen clearly in the illustration at the lower left.





German Blast Furnaces Differ from American Designed Units

Coke Is Irregular in Size and Moisture Content—Flue Dust Is Sintered—Large Fuel Charges Employed—Bells Usually Are Small—Large Tonnages Obtained—Plants Have Many Refinements

By F. H. Willcox

IMPRESSIONS of blast furnace practice and equipment in Czecho-Slavakia, Luxemburg, the Ruhr district, Belgium and England were related Feb. 17 before the Eastern States Blast Furnace and Coke Oven association, William Penn hotel, Pittsburgh, by F. H. Willcox, vice president, Freyn Engineering Co., Chicago. The characteristics and preparation of raw materials used in the blast furnace burdens of the Ruhr district are discussed in the accompanying article.

RAW materials used in the Ruhr district of Germany are assembled from Newfoundland, Sweden, Spain, Africa, and from the Minette mines of France and Luxemburg. Perhaps 20 per cent of the raw materials originate in Germany. Fifteen years ago furnaces were based on a larger proportion of minettes and the steelworks used Thomas iron, which contains 0.3 to 0.4 per cent silicon and 1.5 to 3.0 per cent phosphorous. While the steel capacity of recent installations is largely from open-hearth units, usually the tilting type, there remains a heavy preponderance of Thomas converter capacity, and the major part of the iron production is Thomas quality. This requires high-phosphorus ores.

Basic iron for open-hearth work ranges from 2.5 to 4 per cent manganese. This, it is thought, is because they concentrate practically all their scrap into the open hearth, where the pig iron charge is about 25 per cent, the remainder being good plant scrap from mills and pits, with a major part being rather poor light outside scrap. So the high scrap heat, with its low-iron content, melts down with about a 1 per cent manganese, about the same starting point as with our 50 per cent hot metal of 2 per cent manganese content open-hearth practice, and is tapped with the same residue manganese. This digression explains why high manganese basic pig iron is used. Manganiferous ore is nil in Germany. They import all of the manganese and conserve it, reusing open-hearth slag and mining old ferro and even spiegel slag. This is concentrated, and the so-called slag concentrate—running 12 per cent manganese—is recharged. Manganese ore comes from Sweden, Africa, and the Near East. Other common grades of iron are foundry, called hematite and of the same variable analysis that we find here.

With such wide sources of supply the burdens found at various plants are of the most composite character. At a three furnace plant, each 17,000 cubic feet capacity, producing 1500 to 1800 tons of iron per day, 32 different iron-bearing materials are used. This is a most extreme type, and perhaps the wide composite ore allotment was due to its being favorably situated for Rhine and land shipments.

Ores Are Imported

An inland plant nearby used a burden made up of 40 per cent Wabana, 20 per cent high-grade lump minette, 40 per cent roasted and sintered German spathic and limonite ores, and the usual plant by-products. Going over toward Dortmund, one large plant was using 85 per cent Swedish magnetites, about 40 per cent sintered with the remainder made up of manganese ore and plant by-products, while at an adjacent operation Wabana made up the major part of the burden. At Bochum, with four furnaces, the burden was made up of sinter, produced from a mixture of flue dust, Spanish, African and Swedish concentrates, all fines, mixed with from 8 to 12 per cent coke breeze and sintered on Dwight-Lloyd type machines. The Swedish would correspond roughly to our Harmony concentrates in fineness but the hematites were seemingly as fine as flour.

Germany is rated with having considerable ore reserves in Bavaria and Southern Germany. They are low grade and apparently have to be roasted before they can be concentrated. It has been found cheaper to import ores than to develop the low-grade deposits. It is interesting to note that the turn toward imported ores has given the Ruhr district a distinctly better grade ore to work than was the case formerly. Not only this, but I am of the opinion that it gives a distinctly superior burden, as compared with our somewhat easily reducible ore burdens, the magnetites, sinters and probably Wabanas not being so quickly affected by the reducing influence of the furnace gas.

There does not seem to be any definite proportion of sinter, hard ores or magnetic ores that gives the smoothly working furnaces which characterize the Ruhr district. Their practice follows that of our Eastern district where mixtures have been used for many years ranging from 20 per cent sintered ores and 80 per cent hematite, up to 85 per cent sintered ores and 15 per cent hematite, not to mention the 100 per cent sintered ore practice. If we step back to our own shores for a moment, we find that such burdens invariably give lower blast pressures, lower coke and greater regularity, the furnace taking heat—even on unfavorable lines—without serious tendency to stick and hang.

Aside from the reducibility factor of mixed ores such as are used, the burden is of course more open, as charged. The minettes break up and decrepitate, but with a considerable proportion of lumpy ore, agglomerate and sinter, the burden stays more open than ours. Some plants having a multiple track stock house charge the ore in group filling sequence, much as is done at Provo, Utah, thereby giving a layer filling of coarse and fine in sequence.

A peculiar aspect of their practice is that they use some ores in a lumpy condition that we would refuse to charge. In two plants now

being designed for Germany, clearance in the throat for 14-inch lumps is being provided. It is surprising their furnaces work as well as they do and that working with a burden naturally coarse, they show as much interest in rendering fine ores coarser.

Fine African hematite ores are more difficult to sinter than a mixture of hematite, according to German operators. The tonnage in the Dwight-Lloyd machines drops 20 per cent. As compared with rate of production here, they run slower an a ton per square foot per day basis. The quality of sinter is poor, compared to some of the sinter one sees in the East, but is so much superior to an admixture of fine hematites and magnetites that it is not difficult to see justification for the practice. Their cost is stated to be $0.35 per ton.

Ore Is Screened

While we lay a lot of stress on physical and chemical uniformity, the first factor does not seem to play the part that it does here, though the second is watched, as it has to be with a great many varieties of ores used. I was told that Swedish shippers screen out the lumps, sending them to Germany and the rubble to America.

So, while we in America have come to like, or at least, tolerate, fine ores, and have developed furnace lines, fuel, blowers, and charging equipment to fine natural ores, the Ruhr district has clung to coarse ores, natural or artificial. And this is all logical, since after we had set a pace in tonnage output and coke economy, the only way that the Ruhr district could follow, with their low-pressure blowing equipment and inflexible tub charging system, was to keep the burden open.

Limestone in the burdens usually is calcite and we would call it dirty and excessively large. The pieces charged will average 6 or 7 inches, with maximum up to 12 inches, lump and slabs. The stone is not so free of fines, however, as a result of not as intensive crushing, as might be expected.

Coke Is Irregular

Leaving aside an exception here and there, their coke is not as well prepared as that used in this country, being more irregular in size, analysis and moisture. The coke will average 30 pounds per cubic foot, and sometimes 32 pounds. Ash and sulphur range from 8 to 9 per cent with 1.0 to 1.3 per cent sulphur and 4 to 8 per cent moisture. There is remarkable absence of fingery coke and cross fracture and the coke does not break up easily. The structure seems close but regular, and little of sponge.

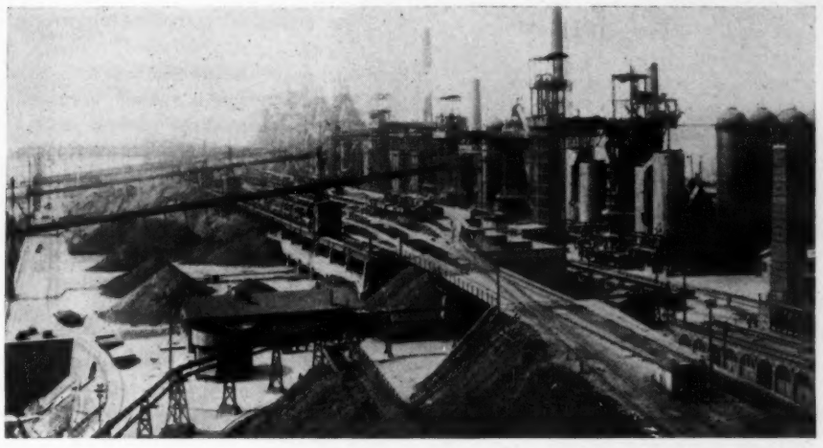
Scrap is not used to the extent that one encounters here, unless its use is camouflaged most successfully. Much of the borings and turnings are briquetted for open-hearth or foundry use, thereby eliminating this large source of supply.

Flue dust is not recharged raw, except at one plant of nine visited, where 5 per cent is put back. They were, however, installing a Greenawalt plant. One plant was blowing the dust into the stack, 30 feet below the stockline, in a 3-inch opening. Clean blast furnace gas, compressed to 60 pounds, is used as a conveying fluid means, 2200 cubic feet per minute being employed. All dust made on three furnaces is recharged into one furnace, amounting to 70 tons per day. The regularity of the furnace is good and the results not discernible at the tuyeres, as far as sloppy conditions are concerned.

Stocking and charging equipment employed at a three-furnace plant includes Neeland tub filling, as modified after its adoption in the Ruhr district. There are also two other furnaces with double skip and McKee top. The furnaces differ in lines and capacity, but not materially, and are of typical German construction. The skip-filled furnaces make 7 per cent dust, and the tub-filled furnaces 3 per cent dust. Skip-filled furnaces burn but three-fourths as many tuyeres as do the tub-filled furnaces. The skip-filled furnaces make about 20 tons more per day apiece, and use about 40 pounds less coke. The pressure is said to be higher on the skip-filled furnace, but both are under 16 pounds.

The bin system is distinctly different from ours. Leaving aside extremes in hand labor and in expenditures, as near a typical layout as can be averaged up would consist of a three or four furnace plant having concrete bins with a capacity of 100,000 tons ore and limestone in bins. There would be four or five scale car tracks running through, parallel with center line of furnace plant. Each track has one or two scale cars with two tubs into which the ore is weighed. Directly back of each hoist is a crane spanning these four scale car tracks, the crane bringing the tub to the base of the hoist. Coke is brought from the ovens in the tubs.

Inclusive of scale cars, crane and hoist, three to four men are required per turn to charge the furnace. Large ore yards with bridges behind the bins are lacking; in many cases the bins are the ore yard, ore storage reserve being on the dock. Filling is in large units. The depth of coke layer as charged is sometimes 4 feet in the furnace top. Bearing in mind periodic charges of coarse materials, it can be appreciated there is an exceptional cross permeability for gas flow in the furnace top. Charging is carried on with excellent regularity and smoothness.



General view of German blast furnace plant on the Rhine

Furnace Construction Differs

Furnace construction is an inversion of ours, that is, a brick stack with steel bands with cooling plates set in, and a steel plate bosh and tuyere jacket without plates, water cooled on the exterior. The whole structure is supported on heavy structural framework extending to the top platform. Even on American type shells such as we have adopted for our designs abroad, they insist on heavy structural beams running vertically from top of column to top platform.

Bells are usually smaller. Linings are 35½ inches thick in the inwall. They have our conventional type

of stockline protection on the top where they do not resort to metal tops, but one doesn't see much of that. Inwall cooling is carried up to the stockline wearing plates. As a rule they use a cast-iron box on 3-foot vertical centers, the plate having a 7-inch depth on the face and 9-inch horizontal spacing between plates. The end is open and the water under no pressure. The plate is about 20 inches in from the face of lining.

Boshes are higher than here, and do not usually go over 78 to 80-degree angle, though as high as 84 degrees is employed. However, the same hearth and bosh diameter seems to hold. Opinion frequently was expressed that for their material and rate of driving, it was better not to go beyond 78-degree bosh angle or over 1300 degrees Fahr. blast temperature.

Furnace sizes vary. Perhaps the best relative production was a maintained average of 915 tons on a furnace with a 16 foot 5 inch hearth, a bosh of 22½ feet diameter and 14 feet 9 inches high, a stockline of 17 feet, a height of 84 feet and a capacity of 22,300 cubic feet. This was operated on Swedish, Minette and German ores, using eight large tuyeres and 1325 degrees of heat. The largest stack encountered was built with a 20½-foot hearth, a 24-foot bosh and total capacity of 33,000 cubic feet on a height of 95 feet. This stack used Swedish magnetites, part nodulized, and was credited with 985 tons average production on about 2050 pounds coke.

Speaking of high-tonnage furnaces, some remarkable rates are being maintained. For instance, one plant makes 930 tons per day on a 22,300 cubic foot furnace, measured from the iron notch to within 2 feet of closed bell. This is done without outside scrap on a yield of 54 per cent. The same size stack in 1914 made 550 tons. The wind volume is 70,000 cubic feet per minute, blown at 14 pounds pressure through eight tuyeres. A blast temperature of 1300 degrees Fahr. is carried.

The coke rate of 2080 pounds seemed high, as did the top temperature of practically 650 to 700 degrees Fahr. But the rate of driving is such that the retention period of gas and stock is abnormally short, and besides the coarse burden of Swedish Minette ores would seem to give a restricted gas-to-ore contact factor. Low-silicon Thomas iron is produced and the slag runs 34 to 35 per cent silicon, 10 to 11 per cent aluminum, 5 to 6 per cent magnesium and 45 to 46 per cent carbon monoxide, with sulphur of 1.5 to 2.0 per cent. The furnaces are cast six, seven and even eight times a day, dependent upon the mixer demands. Parts of casts are put into the sand beds, there being no pig casting machines at these plants. In a couple of plants the iron is run out in sheets, as we run into hot slag pits, and broken with a ball for open-hearth charging.

Stove Operation Unique

Two-stove operation is common, but with three stoves to a furnace, one standing hot and used perhaps every third or fourth round, or not at all, gas being burned occasionally to keep it hot. Many plants operate three stoves and resort to two when circumstances warrant.

For practical purposes engine quality gas must be used, considering plugging or impregnation and fusion. Their efficiency is good, actually 80 per cent with three stoves in operation, and their heat capacity is as much in line. Pressure combustion has to be used, and is of course found of several varieties. There is nothing remarkable about the stove fittings except for an excellently developed automatic remote control whereby one stove tender operates two sets of stoves, the valves opening and closing in sequence. A comparison between typical American and German stoves follows:

	American
Size stoves, feet	23 x 105
Size checkers, inches	4½ x 2½
Heating surface, sq. ft.	91,400
Checker weight, pounds	1,570,000

	German
Size stoves, feet	23 x 108
Size checkers, inches	5½ to 1½ x 3 to 0.82
Heating surface, sq. ft.	162,000
Checker weight, pounds	1,100,000

A decided distaste for wet washing is noticed at German plants, partly due to recent stringent regulations in regard to dumping dirty water into the rivers. Part is due to the expense of wet washing, both in power and in heat value. Part to the general bother and trouble. Much interest is displayed in Siemens-Schukert, in Elga and in Metallbank units—all essentially Cottrell but with modifications in size of tubes or plates and gas velocity and regulating means.

Practice Is Different

Luxemburg, French and Belgium practice is so different from ours that little is to be learned, except admiration for their ability to handle and charge low-grade 27 to 33 per cent iron ores, and make pig iron on 2400 pound coke and sell it, as billets and sheet bar, in England and South America. They are building excellent plants with modern equipment, and have the reverse where ten furnaces are blown from one common blast main, the ore charged by volume with 500 men for the ten furnaces, and use 60 stoves fired with gas engine quality gas. A 28,000-cubic foot furnace, such as is under way in Luxemburg, is good for only 450 to 500 tons, as against 900 tons and better in the Ruhr district, and of course costs as much to build. So that is just a glimpse of what they must contend with in the Minette and Ruhr districts.

Speaking of European plants in general as against American, perhaps our plants do not have the elaborations and refinements that one finds abroad. But they are simpler, and less expensive to build, even though more sturdy in the furnace itself. A comparison of weight follows:

	American	German
Contents, cu. ft.	20,000	21,200
Weight, pounds:		
Furnace	1,340,000	2,012,000
Skip	260,000	1,580,000
Bins	950,000	5,000,000
Stoves	900,000	800,000
Gas cleaning	250,000	700,000
Total	3,700,000	10,092,000

The bins being used as ore storage, we should add the equivalent of an ore yard and bridge, but not including car dumper, as both are hand unloading propositions. This would add about an equivalent 2,300,000 pounds to the American weight, giving 6,000,000 pounds versus 10,100,000 pounds.

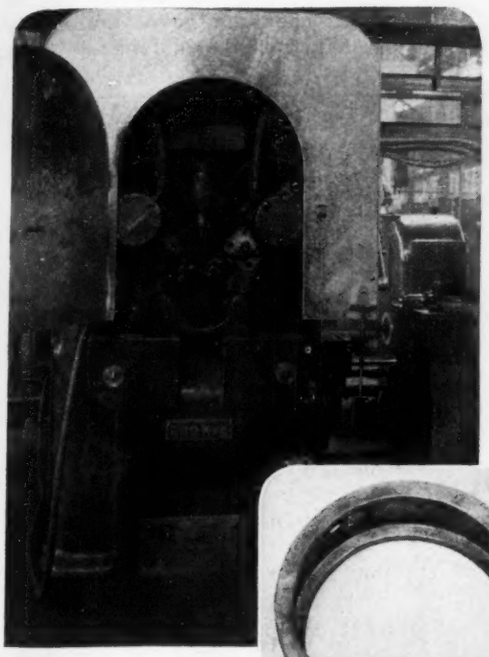
If raw materials are placed on a parity and labor and supplies on a parity, the cost of a ton of pig iron is approximately $2.10 higher for a Ruhr type plant than at a modern American plant, using the same materials and labor and material costs. The typical Ruhr district plant with its bins, heavy hoist and furnace, elaborate gas cleaning and gas engines, will cost approximately $26 per ton per year, as against $20 per ton per year here. As to labor, a single furnace plant will run 5 tons per man per day, as against our 6 tons per man per day. In both cases modern outfits are considered, though using a 900-ton German base.

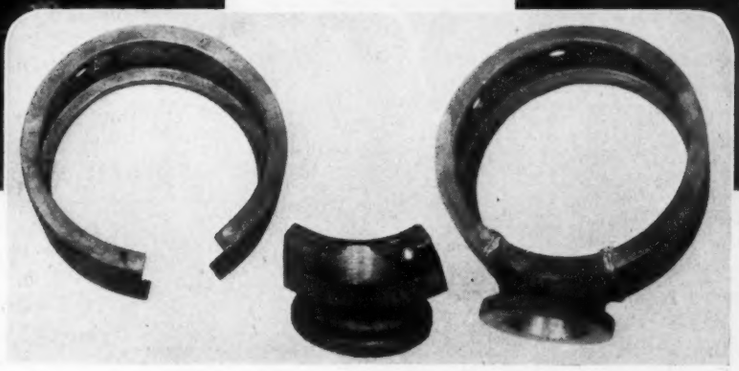
The present trend not only at blast furnaces but in the steelworks is what they call "Rationalization." Intensive study is given man hours, industrial wastes, the number of men carrying 10,000 brick, unloading and loading materials, ultra microscopic study of cost above, etc. A considerable number of men of the Waermestelle are engaged in this stop-watch work.

Ford Uses Forged, Spun and Welded Parts for Axle Housings

New Methods, Embodying Novel Equipment Are Employed in Shaping and Assembling of Parts

By John D. Knox





AUTOMATIC machine recently developed for welding differential ring and neck. (Right) Same machine in action. (Below) Differential ring and neck before and after welding.

ONE piece construction is being employed effectively by the Ford Motor Co. in its Model A automobile through the medium of electric welding. The adoption of this method was not without its problems. If it had been possible to step out into the market and buy a machine adapted to weld sections of various shapes, the problem would have been simplified. But no manufacturer of electric welding equipment builds machines suitable for welding parts such as Ford wanted. So engineers of the Ford organization had to design special machines suitable for specific purposes, 75 per cent of which were built by the Ford engineers because finest thought and supervision is necessary to the successful development of machinery whose mechanical and electrical problems are so interlocked that one can only be considered in relation and as it affects the other. Many experiments were tried and rejected, others were carried to successful conclusions. Some 25 per cent of the machines were placed with concerns whose experience especially fitted them for building that type of equipment. Heavy copper dies for clamping the work in the machines were developed.

Electric welding not only permits speed, uniformity and strength of construction to be obtained but also affords low cost of assembly. The current is brought to each welding machine at 440 volts and is stepped down by a transformer to low voltage, seldom surpassing 10 volts, and high amperage since the heating effect is greater at high amperages.

The principle of welding simply is heat plus pressure, applied scientifically. In electric resistance flash welding, heavy copper or copper alloy jaws, which are excellent conductors of electric current, grip the parts at a uniform distance from the abutment of the two pieces to be welded. This is necessary as the jaws not only supply the current but also control the heat radiation in the pieces themselves during the heating period. The pieces to be welded are of a uniform cross-sectional area and like the laws

Second of a series of articles on welding, forging and stamping processes employed by Ford Motor Co. for production of its Model A car. The first appeared in the March 22 issue. Subsequent instalments will explain details involved in fabrication of various units by welding.

of the Medes and Persians, cannot be changed if good welding is to be executed. In the actual welding process, an electric arc is drawn between the two pieces and a portion of each piece is used as fuel to heat up an area of metal in each piece suitable for welding. The heating has been ideal, localized at the juncture, from the inside out and the heated parts have been protected from the oxygen in the air and other impurities by the enveloping action of the arc. The more intense the heat becomes the greater the resistance and the less the quantity of current consumed, altogether a speedy and economical procedure. Two and one-half tons per square inch upsetting pressure is applied to the parts instantly by the ingenious application of the lever and fulcrum principle known as a toggle action, the current being cut off in the early part of this upset.

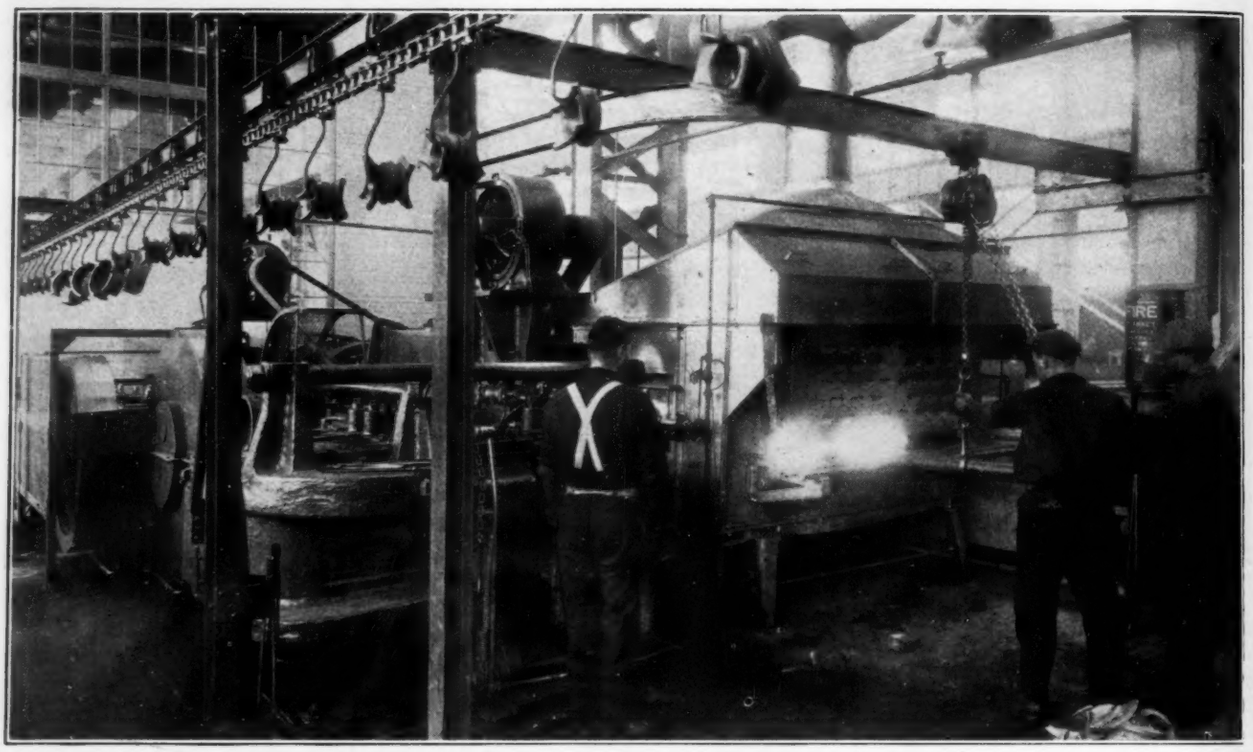
A description of all welding operations employed in the fabrication of the various parts for the present model Ford car would involve considerable space for its presentation. A few of the parts assembled by the utilization of welding include the steering gear housing, starter shaft, differential ring gear, rear axle housing, engine pan, generator pulley, brake shafts, front and rear radius rod, oil pump gear, oil pump screen reinforcements, fuel tank, steel spoke wheels, spare tire carrier, windshield frame, muffler, fan assembly, and battery support.

The fabrication of the rear axle housing, the differential ring gear, the fuel tank and the fan blades will serve as typical examples to depict how welding is being utilized to effect the combination of materials.

A rear axle housing in the Model A is fabricated of forged, pressed and hot spun steel parts. The housing for the differential, known as the banjo, is made of a small channel section. The U-shaped section of steel is rolled on the company's 14-inch merchant bar mill. The department set aside for the fabrication of the differential housing is located near the hotbed.

The channel sections arriving at this department are placed on a roller conveyor table. This table terminates in an electrically-driven combination shear and punch which cuts the channels to the desired length and pierces two holes in the web at the desired location. A partial circle then is formed from the channel section by two die operations. The first operation produces a U-form. The section then is placed in an adjacent forming press which closes up to the U into a partial circle. The gap later is closed by welding in the differential neck forging to the ends of the channel section.

The holes, which are pierced in the web at the first operation are known as dope holes and are for the injection and drainage of the oil used to lubricate the differential gears. The metal around these holes is annealed by being passed beneath gas burners. This is accomplished by placing the rings on one end of a horizontal pipe and by a mechanical pusher advancing them to the opposite end, the steel around the holes being gradually heated while running the gamut of burners. Seven rings are heated simultaneously. The holes in the rear axle differential housing are flanged out by punch and die on one machine and restruck by a punch and die on a second machine. The pieces then are hooked on an elevated conveyor which carries them to the welding station for joining with



HEATING STEEL BARS PREPARATORY TO BEING SERVED TO THE BULLDOZING MACHINE SHOWN AT THE LEFT. IN THIS PRESS, WHICH IS EQUIPPED WITH TRIPLICATE DIES, THE DIFFERENTIAL NECK OR SLEEVE IS FORGED

the differential neck forging.

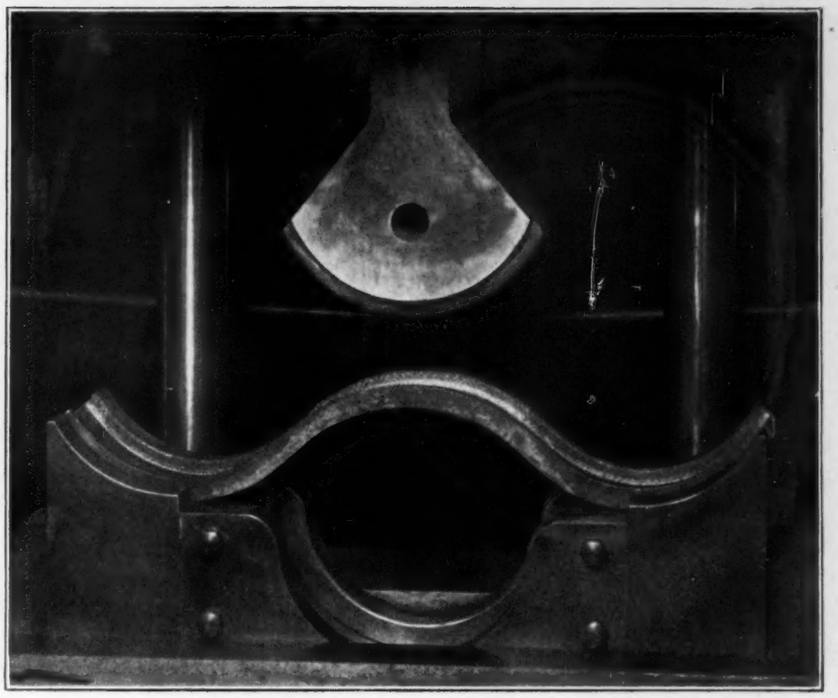
The differential necks are forged from round bars rolled on the merchant mills of the Ford company. The bars are heated in a furnace fired by coke oven gas. It is interesting to note in passing that these ovens are painted with aluminum to reduce the radiation losses. When at the desired temperature a bar is removed from the hearth by a clamp and chain block suspended from a monorail, and is transferred from the furnace to a horizontal forging machine. The latter is equipped with triplicate dies. Loose scale is removed by a scraping device. The bar is inserted in the top die and upset; then into the middle die which increases this upset; and, finally into the lower die which removes the formed section from the bar proper. These operations are repeated until the heated section of the bar is exhausted. The steel then is returned to the furnace for further heating and a fresh bar substituted. Three forging installations are provided for this purpose.

The flash is trimmed off after the forging operation and the piece is restruck to the specified contour. The forging, held in a chuck, then is rough machined on multimatic machines, the opening for the drive shaft being bored to 3-inch diameter, reamed and the neck faced to facilitate suitable electrical contact for welding which follows.

Clamps Made of Copper

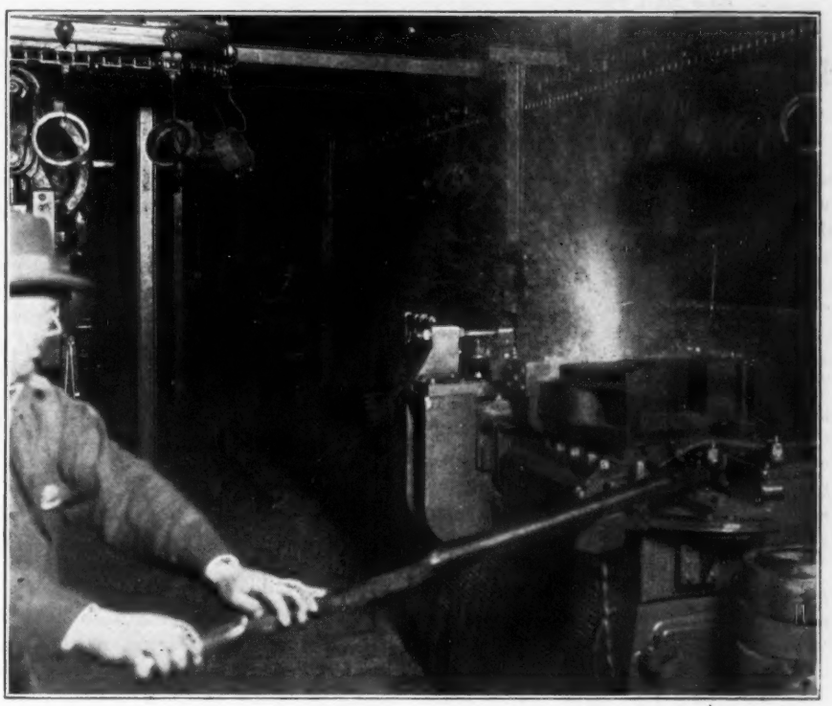
Welding machines of Ford design are installed in this department for effecting the union of the differential ring and neck. These are provided with heavy clamping jaws of copper which permit the passage of a large volume of current through the joint to be welded. A transformer is housed in the base of each machine and low voltage and high amperage current is conducted from this to the water-cooled copper electrodes by heavy flexible copper leads.

The differential neck forging and the differential housing or banjo are placed in the clamps of the welding machine which hold them in accurate alignment. The two pieces are locked securely in their respective jaws. The operator then pulls a horizontal lever slowly through an arc of a circle. The two separate sets of clamps are advanced toward each other and as the differential neck forging and housing meet, the transformer circuit is closed by a trigger switch operated from the handle of the lever. The arc, throwing out a spectacular volume of sparks, quickly heats the pieces to welding temperature in 5 to 7 seconds.

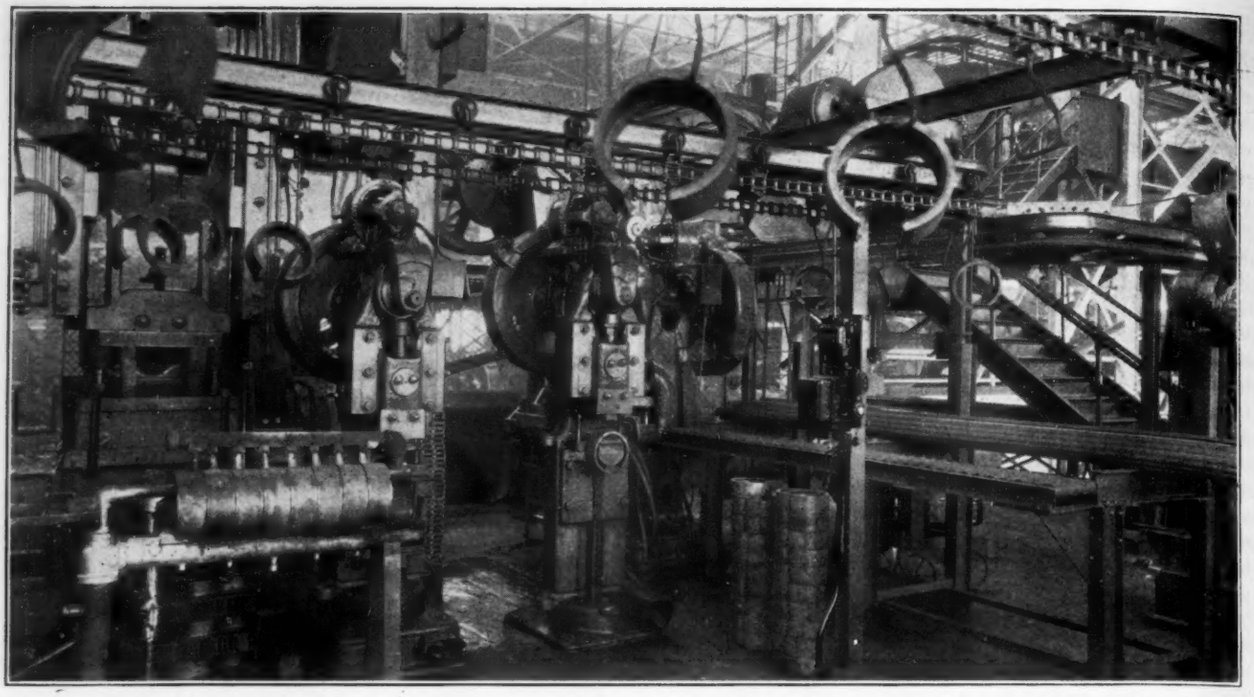


CLOSEUP OF THE PUNCH AND DIE WHICH FORM THE U-SHAPED BLANK FOR THE DIFFERENTIAL RING INTO AN UNCOMPLETED CIRCLE

The operator then pulls the lever quickly through the remaining part of the arc to its maximum position, this being known as the upset. The current is cut off during the first 25 per cent of the upset. The pressure thus applied at the junction of the two pieces while at welding temperature causes them to become one assembly and forces from the weld all overheated metal. The flash left by the welding operation is trimmed, then follows the final machining operation and assembly into the rear axle unit which later will be described. Within the past few weeks Ford engineers have designed, built and developed a new machine for welding the two parts just mentioned. With this machine one man can do the work of five men and two of the old style machines. The entire unit is automatic, the operator having only to load, trip the machine and remove the work.



DIFFERENTIAL RING OR BANJO BEING WELDED TO THE DIFFERENTIAL NECK OR SLEEVE BY THE FLASH RESISTANCE METHOD



PARTIAL VIEW OF THE DEPARTMENT IN WHICH THE BANJO OF THE REAR AXLE ASSEMBLY IS FABRICATED. MACHINES IN THE CENTER ARE USED FOR FLANGING THE DOPE HOLES THROUGH WHICH THE DIFFERENTIAL GREASE IS INSERTED AND DRAINED

In the fabrication of the rear axle the differential housing is held to close tolerance. It is limited to a width ranging from 3.499 to 3.501 inches. A 0.003-inch tolerance is the maximum allowed in the bore of the completed differential housing while in the final bore of the differential sleeve the diameter is held to a 0.001-inch limit, ranging from 3.150 to 3.151 inches.

(To Be Continued)

Handling Is Facilitated by Electric Trucks

(Concluded from Page 871)

used for the work. Formerly nine wheelers were kept busy all day in disposing of this material. The distance from the plant to the siding on which the car was placed that carried these chips away frequently exceeded 1000 feet and always included a curving up grade of 6 per cent, 40 feet long. When crane trucks were placed in service, primarily in other operations, they were assigned the job of removing this chip material. Two trucks, two drivers and two helpers now do the job in 20 minutes that formerly required 8 man hours a day.

Plants handling large amounts of material in tote cans have found that a specially designed truck is particularly useful. This is built to lift the can with arms that clinch it just under the top rim. One such truck working mainly in the hot bolt department of a Pittsburgh plant saves approximately six men per shift in this work.

Plant Moves Loads in Tumblers

A recent development in this type of handling has been accomplished by a hardware plant which handles materials in one-ton batches in tumbling barrels. Parts are carried in this way to tumbling and later to pickling or shipping.

Handling pipe fittings and small iron or steel sundries is occasionally improved by the use of a magnet sling from a crane attached either to a low lift or straight platform truck. Power is supplied from the batteries of the truck and the magnet is used for the loading or unloading as is commonly the case, on a larger scale, in handling pig iron.

This use of the electric truck meets another problem frequently met in the same plants. The storing of cases and kegs in warehouses, prior to shipment or subsequent to receipt constitutes an operation that is wide open to lost motion. The tiering truck has come into favor in many plants for doing this work.

Suggests Standards for Electrical Products

Adoption of minimum standards of performance for electrical products as the next logical step in the standardization program of the electrical industry was the recommendation of W. S. Rugg, vice president, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., in an address which he presented recently before a meeting of the policies division, National Electrical Manufacturers association. Successful standardization already accomplished by the industry on apparatus characteristics, such as capacity, speeds and dimensions, should be followed by establishment of quality levels of performance, according to Mr. Rugg.

Regarding the minimum standard of performance as a direct means of achieving economy and efficiency of production, and above all, of insuring the user of apparatus against unbalanced design and performance and general unsatisfactory service, the speaker described the ideal minimum as accomplishing a balance between: 1.—Lowest cost of manufacturing and distribution; 2.—greatest adaptability to the purpose for which the apparatus is to be used; 3.—greatest durability, or its length of life; 4.—lowest cost of maintenance; and 5.—lowest cost of power for operating it.

Increases Tractor Quota

By March 20 the tractor division of the Allis-Chalmers Mfg. Co., Milwaukee, had disposed of its entire sales quota for 1928 and preparations have been completed for a 50 per cent increase over this quota, an official of the company has stated.

Alloy steel production of the Donner Steel Co. Inc., Buffalo, in 1927 was double that of 1926.

Average Profit on Capitalization	
	11 Automobile Manufacturers 28.05%
	11 Auto Parts Manufacturers 12.76%
	11 Leading Steel Producers 5.24%

Motor Car Company Profits Are Many Times Those of Suppliers

* * * * * *

Is Undue Pressure Being Exerted for Low Prices?

By John W. Hill

EARNINGS on capital in the automobile industry in 1927 were more than five times the average return for iron and steel companies, the chief single source of raw material supply for motor cars. Compared with earnings for parts and accessory makers, the automobile industry showed a return that was more than twice as great.

During 1927, a year of some uncertainty and recession in general trade, the return of 11 leading automobile companies was $28.05 for each $100 of total capital. The return of 11 parts companies was $12.76 for each $100 of capital, while 11 steel companies earned only $5.24. These facts are shown by a compilation of earnings for the three groups of industries by IRON TRADE REVIEW. In the rather startling discrepancy between profits of automobile companies and those producing steel, is found the basis for assertions frequently heard in the steel trade that motor car companies have tended to exert undue pressure for lower and lower prices. Unquestionably in recent years the automobile trade has held the whip hand over many suppliers, as a great consumer in a buyer's market.

Has the advantage thus held been pressed beyond sound economic bounds and to a point where the profits and purchasing power of other great lines have been reduced? This question asked many times in the past has been aroused afresh by the appearance of the 1927 reports.

It must be admitted that earnings of iron and steel companies have dropped so notoriously low, not because of poor business or greatly slackened activities, but because of depressed prices. In the period of exceptional industrial prosperity of the past three years iron and steel average prices have declined about 15 per cent. This drop in values has more than offset great savings effected by important economies in production. Some companies literally have saved a dollar in operating costs and then handed $1.10 or more to the consumer in lower prices. For the $1,000,000,000 expended in new and more efficient steel-making equipment in the last ten years there is not a dollar of increased earnings visible. Since 1902 iron and steel prices have advanced only 25 per cent, while

Automobile Manufacturers

COMPANY		Total Capital (As of the beginning of the Year) Excludes All Reserves	Net Income Before Bond Interest and Dividends	% Earned on Total Capital
Chrysler Corp.	1927	$ 76,909,436	$ 19,674,923	25.59%
Yrs. end. Dec. 31	1926	72,835,708	15,740,773	21.61
Dodge Bros., Inc.	1927	114,978,610	13,441,326	11.69
Yrs. end. Dec. 31	1926	92,055,690	25,412,616	27.60
General Motors Corp.	1927	636,678,004	(1) 235,104,826	(1) 36.90
Yrs. end. Dec. 31	1926	488,978,240	(1) 186,231,182	(1) 38.10
Hudson Motor Car Co. Yr. end. Dec. 31,'27		43,078,017	14,431,256	33.50
13 Mos. end. Dec. 31	1926	43,001,985	5,372,874	12.48
Hupp Motor Car Corp.	1927	19,556,499	2,719,164	13.90
Yrs. end. Dec. 31	1926	17,085,973	3,507,629	20.51
Mack Trucks, Inc.	1927	75,054,566	5,844,306	7.79
Yrs. end. Dec. 31	1926	(2) 57,647,535	8,852,453	15.35
Nash Motors Co.	1927	38,563,350	22,670,745	5.88
Yrs. end. Nov. 30	1926	34,718,272	23,346,306	6.72
Packard Motor Car Corp.	1927	46,480,944	11,743,498	25.25
Yrs. end. Aug. 31	1926	39,136,538	15,843,587	40.47
Pierce Arrow Motor Car Co.	1927	24,543,170	d 403,496	d 1.64
Yrs. end. Dec. 31	1926	22,051,577	1,638,910	7.43
Reo Motor Car Co.	1927	27,993,424	4,071,608	14.55
Yrs. end. Aug. 31	1926	26,935,504	4,280,094	15.88
Studebaker Corp.	1927	12,958,832	11,937,861	10.57
Yrs. end. Dec. 31	1926	110,724,038	13,042,119	11.78
Total 11 Companies	1927	1,216,794,852	341,236,017	28.05
	1926	1,005,171,060	303,268,543	30.15
10 Companies excluding	1927	580,116,848	106,131,191	18.29
General Motors	1926	516,192,820	117,037,361	22.70

(d) Deficit.
(1) Includes equity in undivided profits of subsidiary companies.
(2) Excludes subsidiaries.

wages in the industry have increased 150 per cent. During the same period prices of general commodities have advanced 77 per cent.

It must be admitted, furthermore, that one of the most aggressive factors in bearing down on iron and steel prices is the automobile industry. Little more than a decade ago the motor car trade was an insignificant user of steel. Probably not more than 3 or 4 per cent of the steel made flowed directly into the production of motor cars.

But the present picture is radically different. The motor car industry is one of the four great consuming lines of iron and steel, taking fully 15 per cent of finished steel production in an average year. The policies of its buyers inevitably have an important effect upon the steel trade. The motor car industry is largely concentrated into great producing units, as a result of which it wields a tremendous influence through purchasing departments. This influence unquestionably is more potent than that of any other single iron and steel consuming line.

Has this power been employed, with disregard of the ultimate economic consequences, to force down steel prices to a level unprofitable to the steel producer and enormously profitable to the automobile maker?

Have the shrewd two-fisted men who control the purchasing policies of the motor car companies taken undue advantage of a competitive situation in the steel trade to play off one producer against another and thus wear down price levels?

The motor car interests, themselves, declare these insinuations are baseless. Of course, it is admitted, the motor car companies buy in the lowest market. Competition in their own trade compels this. If the steel companies have built up an excessive plant capacity thus creating a buyers' market, the motor car trade is not at fault.

Moreover, it is maintained that the automobile industry has pointed the way in mass production and that it has expanded from nothing to a gigantic over-towering industry in the short space of a single generation. It has provided a great new outlet for steel, an outlet undreamed of at the beginning of this century.

This great industrial structure it is asserted, has been erected by virtue of quantity output and low prices that have placed the automobile within the reach of the multitude. Mass production depends upon mass consumption and, mindful of this fact, motor car producers maintain they must keep an iron hand upon costs in order to hold motor car prices low. As to profits, it is declared a measure of difference is to be expected between an industry producing a basic raw material like steel and one making a finished product into the sale of which there enters such hazardous considerations as style and popular whims.

This is the case of the automobile industry. Its fundamental soundness within certain limits is denied by nobody, not even those who complain most bitterly of the alleged ruthless buying methods of some automobile companies.

It is business wisdom for any industrial company to buy its materials as cheaply as possible, but it may be seriously questioned whether it is good policy to exert such a pressure upon prices as to create an unbalanced economic situation.

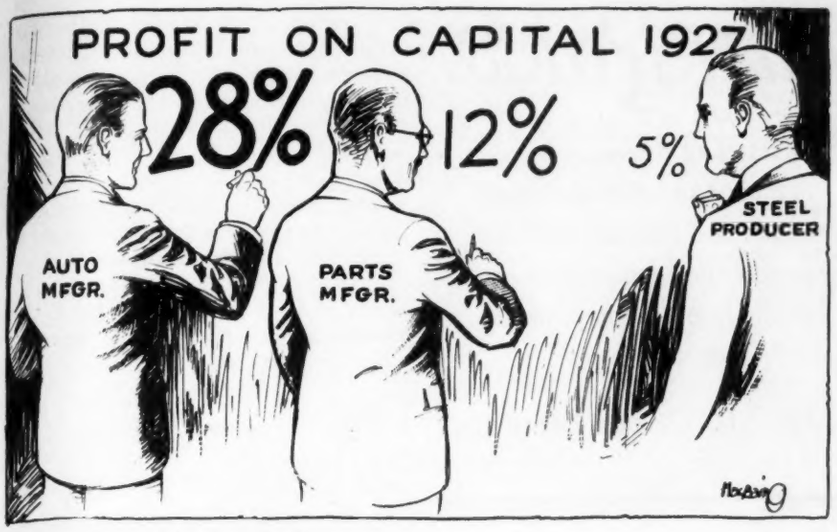
That, according to some observers in the steel trade, is what is happening as a result of the buying policies of many automobile companies. Obviously a return upon capital of little more than 5 per cent is inadequate for a great basic industry like steel. An aggregate of $6,000,000,000 is invested in the steel trade. Mills and plants give employment to approximately 450,000 and annual pay rolls are more than $750,000,000. If the steel industry does not prosper, the thousands of investors who hold steel company securities together with the steel mill employes, cannot prosper. All this is bound to have a reflex upon the automobile trade

Have they sharpened

Automobile Part and Accessory Manufacturers

COMPANY		Total Capital (As of the beginning of the Year) Excludes All Reserves	Net Income Before Bond Interest and Dividends	% Earned on Total Capital
American Bosch Magneto Co.	1927	$ 8,021,207	$ 469,174	5.85%
Yrs. end. Dec. 31	1926	10,207,265	448,319	4.39
Briggs Mfg. Co.	1927	32,300,621	1,155,730	3.58
Yrs. end. Dec. 31	1926	29,993,093	8,178,513	27.25
Continental Motors Co.	1927	35,205,764	1,756,558	4.99
Yrs. end. Oct. 31	1926	34,886,946	2,569,099	7.36
(1) Kelsey-Hayes Wheel Corp.	1927	27,640,077	631,877	2.28
Yrs. end. Dec. 31	1926	29,650,528	1,120,853	3.78
Midland Steel Products Co.	1927	13,058,302	1,776,875	13.60
Yrs. end. Dec. 31	1926	12,743,083	1,748,611	13.72
Motor Wheel Corp.	1927	12,632,178	1,542,834	12.20
Yrs. end. Dec. 31	1926	12,287,118	1,628,810	13.25
Smith (A. O.) Corp.	1927	16,531,570	3,946,212	23.89
Yrs. end. July 31	1926	15,596,757	2,028,736	13.01
Spicer Mfg. Corp.	1927	14,630,650	1,116,352	7.64
Yrs. end. July 31	1926	14,222,690	1,696,630	11.93
Stewart Warner Speedometer	1927	26,734,853	5,210,053	19.48
Yrs. end. Dec. 31	1926	26,263,598	5,108,885	19.46
Timken-Detroit Axle Co.	1927	15,091,023	1,540,530	10.21
Yrs. end. Dec. 31	1926	14,314,890	1,772,460	12.38
Timken-Roller Bearing Co.	1927	28,109,901	10,221,537	36.30
Yrs. end. Dec. 31	1926	25,064,780	9,854,310	39.30
Total 11 Companies	1927	229,956,146	29,367,732	12.76
	1926	225,230,748	36,155,226	16.05

(1) Company incorporated in May, 1927. The capitalization shown is the combined capitalization of Kelsey Wheel Co. and Hayes Wheel Co., thus showing what the capital of the present company would have been had it existed on Jan. 1, 1926. The earnings for 1926 are the combined earnings of the two companies.



their pencils too fine?

whose very life depends upon a wide distribution of prosperity conducive to mass consumption.

An important eastern banker who has had occasion to study the buying policies in many lines of industry has this to say:

"Some companies in the automobile industry are inclined to forget the economic consequences of their buying policies. Purchasing departments, under constant pressure from the top, seem to be possessed with the desire to get something for nothing. This is not only true with respect to iron and steel but to all other suppliers.

"No one would dispute the right of the motor car companies to buy in the lowest market. But I do not believe it sound for a motor car company to carry its advantage to the point of asking its supplier to do business on an unprofitable basis. I have heard of cases like this. Frequently when an automobile producer reduces the price of its car it expects suppliers to cut their prices in proportion. By this method the automobile company protects or increases its profits, while the supplier already working at rock bottom levels, sometimes holds the bag. Here is found some part of the explanation at least of the glaring discrepancy in profits between the motor car companies and those in many lines producing material from which the automobile is fabricated."

What is true of the iron and steel companies is true also, in some degree of the parts companies. Their earnings on capital average about one-half of the return for automobile companies. With the exception of a few producers the earnings of parts companies are not impressive. This reflects the growing tendency of motor car makers to produce as much of their own part needs as possible or to buy from the outside at close prices.

Last year brought a reduction in the net return of nearly all important industries compared with 1926. The 11 parts companies in the compilation earned 12.76 per cent on capital compared with 16.05 per cent one year before. The 11 steel companies, earned 5.24 per cent against 6.89 per cent in 1926, and the 11 automobile companies earned 28.05 per cent against 30.15 per cent.

It is curious to observe that among the motor car companies the dominant factor, General Motors, earns far more than the average for other leading companies, exclusive of the Ford Motor Co., figures for which are not available. In the steel trade, on the other hand, the largest interest, the United States Steel Corp., shows a net return upon capital, not only extremely small compared with General Motors, but actually less than the independents.

The steel companies selected for the compilation are among the most important in the trade, making products consumed in the manufacture of automobiles. Nearly all of them produce material for many other uses and lines than that of automobile manufacture. Yet nowhere has the pressure been so great for lower steel prices in recent years, than from the motor car companies. But to this factor alone cannot be laid the full blame for low steel profits.

The steel industry has indulged in a scramble after volumes of output, without due consideration of possible profits. It has fallen behind in the modern art of merchandising its product at a price yielding a fair return upon capital investment. Undoubtedly it has allowed itself to drift into a position where it is easy for the automobile industry or other large consumers successfully to insist upon undue concessions. In the long run, however, prices so low that they do not yield a fair profit to the producer in a great industry like steel inevitably will react upon the entire economic structure. It is this certainty which may well give the automobile industry pause, if it is true that the heavy artillery of its purchasing departments have indeed been directed toward mowing down prices of steel to cubnormal and unprofitable levels.

Iron and Steel Manufacturers

COMPANY	Years End. Dec. 31 in Each Case	Total Capital (As of the beginning of the Year) Excludes All Reserves	Net Income Before Bond Interest and Dividends	% Earned on Total Capital
United States Steel Corp.	1927	$2,178,977,852	$112,011,265	5.17%
	1926	2,139,926,286	142,182,357	6.64
Bethlehem Steel Corp.	1927	600,188,000	27,282,403	4.54
	1926	569,633,355	32,778,587	5.75
Youngstown Sheet & Tube Co.	1927	198,895,106	11,121,639	5.59
	1926	190,169,846	19,439,680	10.22
Jones & Laughlin Steel Corp.	1927	179,213,470	11,986,960	6.68
	1926	172,223,835	15,999,669	9.29
Inland Steel Co.	1927	79,369,735	7,581,802	9.55
	1926	77,505,233	7,850,871	10.12
Republic Iron & Steel Co.	1927	109,169,163	4,061,272	3.72
	1926	112,706,388	6,248,635	5.54
Central Alloy Steel Corp.	1927	67,240,988	3,151,595	4.68
	1926	67,240,988	3,719,648	5.53
Wheeling Steel Corp.	1927	102,836,746	5,553,902	5.40
	1926	102,704,630	6,603,158	6.42
American Rolling Mill Co.	1927	53,934,266	4,189,116	7.76
	1926	52,745,666	4,501,000	8.53
Otis Steel Co.	1927	33,479,734	2,168,293	6.47
	1926	32,605,652	2,673,435	8.19
Interstate Iron & Steel Co.	1927	13,489,802	640,224	4.74
	1926	12,373,984	1,176,212	9.60
Total	1927	3,616,794,863	189,578,471	5.24
	1926	3,529,835,863	243,173,252	6.89
10 Companies excluding United States Steel Corp.	1927	1,437,817,011	77,567,206	5.39

The Court Rules:

A series of decisions in actual civil and criminal cases which are typical of those frequently encountered by small shops in metalworking industries.

By M. L. Hayward

Beware How Your Property Is Used

YOU can have that truck for $800 and four months' time to pay in," the Jones Metal Co. offered. "We are going to cut out delivering after the first of the year."

"It's a sale," Smith agreed.

"Of course, you'll have to sign up the usual 'conditional sale' agreement, saying that the title and ownership of the truck remains in me until final payment," Jones suggested.

"No objection to that, for I intend to pay for it anyway," Smith declared. He "signed up," filled the tank with gasoline and rattled down the street.

A week later the metal dealer met the sheriff driving "his" truck.

"Did you buy that truck from Smith?" the dealer demanded.

"No, got it cheaper than that—seized it from him for transporting liquor contrary to law," the sheriff informed him.

"But that's my truck, I've got a lien on it under a conditional sale agreement.

"Well, it belongs to the state now," the sheriff informed him, and continued on his way.

Where does the metal dealer stand in a case like this?

In a case involving this point and reported in 206 Southwestern Reporter, 748, the supreme court of Arkansas decided that the dealer had no remedy, as far as the property was concerned.

"Indeed, the sale itself gave the right of possession, and the violation of the law was committed under the possession thus conferred," said the court.

"When property becomes liable to forfeiture under the positive provisions of the statute, owners who have in no way participated in the frauds which caused the forfeiture must seek redress from the wrongdoers who unlawfully used the property with which they were intrusted; or they can apply to the officers of the government invested with the authority to remit forfeitures," says the United States federal court, in a case along the same line.

Study Different Steels for So-called Creep

So-called creep tests in which the elongation of metal specimens is observed with time under a fixed load are reported in technologic paper No. 362, just published by the bureau of standards, Washington. The authors of the report were H. J. French, senior metallurgist; H. C. Cross, junior metallurgist; and A. A. Peterson, assistant scientific aid; all of the bureau. Tests were made on a low-carbon structural steel, a high-chromium steel, a chromium-molybdenum structural steel, high-speed steel, and a high-chromium high-nickel austenitic steel and correlated with short-time tension tests at corresponding temperatures within the range 70 to 1350 degrees Fahr.

The relations between stress, temperature, elongation and time for each of the steels is shown by so-called creep charts, which enable the approximate determination of the stress permitting life of different durations with different total elongations. Correlation of creep tests with short-time tension tests shows that, when using accurate equipment, the proportional limit was in the range of stresses which could be sustained for long periods with small amounts of deformation.

Best resistance to oxidation in air was shown by the high-chromium high-nickel steel and the high-chromium steel. These appear to be superior to the high-speed steel, which, however, with the high-chromium high-nickel steel showed the best load-carrying ability in the range 1100 to 1350 degrees Fahr. The chromium-molybdenum steel was not structurally stable at 1200 degrees Fahr. Oxidation was accompanied by decarburization and grain growth.

Copies of the paper may be obtained for 15 cents each from the superintendent of documents, government printing office, Washington.

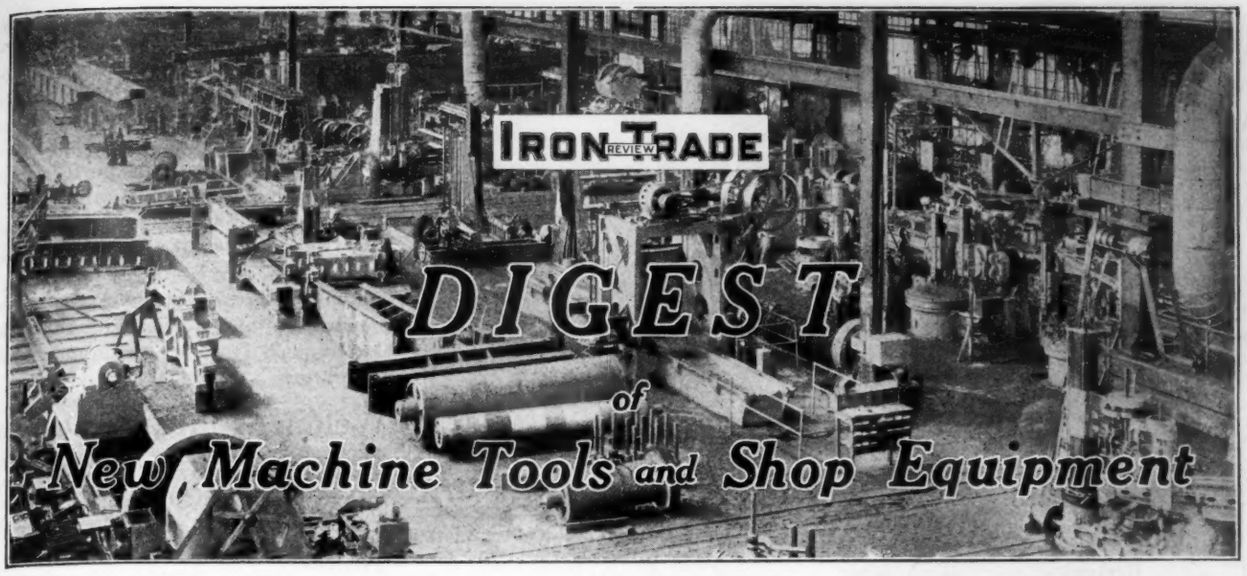
Cites Correction for Optical Readings

Recent work by the bureau of standards has demonstrated that two ladles of the same iron, giving the same optical readings may actually differ in temperature by 75 degrees Cent. As a ladle of cast iron cools, a marked increase in the brightness occurs at about 1375 degrees Cent. which is ascribed to the formation of an oxide film. Foundrymen usually have had trouble in this region when the pouring temperature of castings was controlled according to the optical pyrometer readings. The bright oxide surface, below 1375 degrees Cent., is a matte yellow while the clean iron, above 1375 degrees Cent. has a mirror surface with a greenish tint. By taking this into account and correcting optical readings according to the surface observed, foundrymen can control temperatures accurately even in the transition region and eliminate the spoilage of castings resulting from a lack of knowledge of this phenomenon. For iron oxide, the corrections were found to be about 40 degrees Cent. while for clean iron the corrections range from 110 to 150 degrees Cent. depending on the temperature.

Steel Club Holds Dinner

The Steel Club of Cleveland held its first annual dinner at the Hotel Hollenden, Cleveland, March 30. The club was formed for the purpose of promoting good fellowship among the men identified with the sale of steel in Cleveland, and now has a membership of 21. J. G. Carruthers, Otis Steel Co., is president, and Thomas M. Galbreath, Sharon Steel Hoop Co., is secretary.

Germany's foreign trade, both exports and imports of iron and steel products, gained slightly in January. Imports totaled 202,469 metric tons and exports 314,839 tons.



Industry Lacking Modern Equipment

ALMOST unusual line of shop equipment found its way into the market during March. Relatively few standard machine tools were introduced but a rather extensive line of special-purpose units were brought out. Included in the strictly production tool class were a geared-head lathe, an axle lathe, a thread milling machine, a slitting machine and coiler, a universal iron worker, a valve face grinder, a knife blade grinder, a swing-frame grinder, a radial rolling machine, two riveting machines and several tools for drilling. Among items of miscellaneous equipment were a straightening machine, a chain hoist, a lead hardening furnace, a gasoline locomotive, several electric arc welding machines and equipments for oxyacetylene welding. It has been many months since such a varied line has been described in the columns of IRON TRADE REVIEW.

March Buying Proved Fair

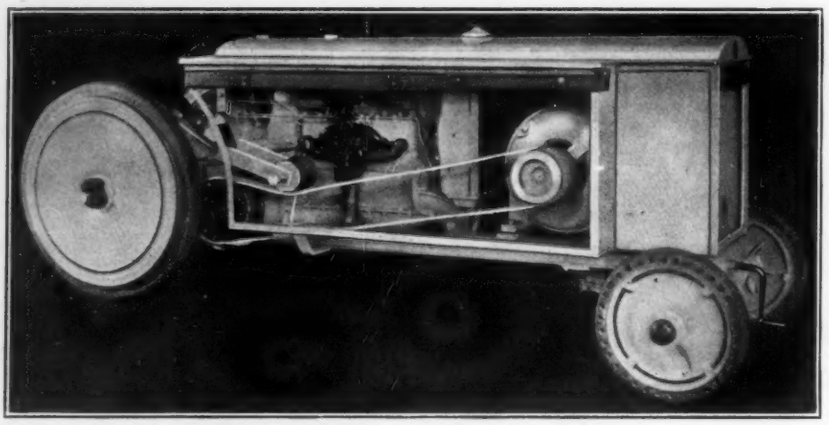
Sales of machinery in the month just passed was not up to the level anticipated, nevertheless they were fair. If the automotive industry had participated as it does normally each spring, the volume of orders would have been much higher, but this industry has been a poor buyer. The extremely bitter competition in automobiles of the low-price class has made it necessary for manufacturers to cut their production costs to the bone. Even the increased number of new models and changes in design have not created the customary demand for production machinery.

In spite of the reluctance of buyers, including industrial as well as auto-

(*Concluded on Page* 885)

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
57.	Thread miller	Smalley-General Co.	Performs heavy work without chatter	March 1
58.	Bus bar supports	Westinghouse Electric & Mfg. Co.	Modified hollow square type	March 1
59.	Geared head lathe	Cincinnati Lathe & Tool Co.	Motor mounted in cabinet leg	March 1
60.	Spiral weld iron pipe	Naylor Spiral Pipe Co.	Grooved ends for victaulic couplings	March 1
61.	Limit switch	General Electric Co.	For magnetic control	March 1
62.	Straightening machine	Sutton Engineering Co.	Accurate straightening in single pass	March 1
63.	Radial rolling machine	Aetna-Standard Engineering Co.	Specially designed for disk sections	March 1
64.	Welding electrodes	Fusion Welding Corp.	Mild steel; for arc welding	March 1
65.	Valve face grinder	Landis Tool Co.	Semiautomatic and hydraulic	March 1
66.	Induction motor starter	Lincoln Electric Co.	Adjustable with automatic features	March 1
67.	Axle lathe	Consolidated Machine Corp.	Heavy-duty, center drive, oil-geared	March 1
68.	Gas welding outfits	Oxweld Acetylene Co.	For sheet metal and automobile repair	March 1
69.	Air grinder and sander	Independent Pneumatic Tool Co.	New design; balanced, vibrationless	March 8
70.	Knife blade grinder	Samuel C. Rogers & Co.	Automatic, sectional wheel	March 8
71.	Belt conveyor pulley	Jeffrey Mfg. Co.	Plain, bushed and roller bearing	March 8
72.	Dragline bucket	Harnischfeger Corp.	Electrically-welded, heavy-duty	March 8
73.	Angle-head drill	Stow Mfg. Co.	Attachment for flexible shaft equipment	March 15
74.	Chain hoist	Ford Chain Block Co.	Hand-operated; welded chain	March 15
75.	Electric hand saw	Wodack Electric Tool Corp.	Performs vertical and bevel sawing	March 15
76.	Lead hardening furnace	General Electric Co.	Pot-type, electrically heated	March 15
77.	Electric motor	Wagner Electric Corp.	Totally enclosed, air jacketed	March 22
78.	Slitting machine and coiler	Torrington Mfg. Co.	Slits and coils simultaneously	March 22
79.	Flexible-shaft unit	Stow Mfg. Co.	Direct, connected; overhead suspended	March 22
80.	Gasoline locomotive	H. K. Porter Co.	New design; new type drive	March 22
81.	Cement gun	S. Obermayer Co.	Air operated; for refractories	March 29
82.	Universal iron worker	Buffalo Forge Co.	Larger size punch, shear and bar cutter	March 29
83.	Riveting machine	Hanna Engineering Works	Pneumatic; for chassis frames	March 29
84.	Riveting machine	Hanna Engineering Works	Pneumatic; for tractor wheels	March 29
85.	Swing-frame grinder	Norton Co.	For high-speed snagging work	March 29
86.	Electric arc welder	General Electric Co.	Combined with gasoline tractor	April 5
87.	Electric arc welder	Westinghouse Electric & Mfg. Co.	Motor-driven; mounted on wheels	April 5
88.	Electric arc welder	Lincoln Electric Co.	Gasoline engine driven	April 5
89.	Diesel engine	Fairbanks, Morse & Co.	For drilling oil wells; portable	April 5
90.	Air filter	National Air Filter Co.	Unit type; uses new medium	April 5
91.	Grease cup	Hunter Pressed Steel Co.	Improved design; cadmium finish	April 5
92.	Gas producer fuel feed	Wellman-Seaver-Morgan Co.	Double-bell type; adjustable	April 5



No. 86—Electric arc welder combined with gasoline tractor

Arc Welder and Tractor Built in One Unit

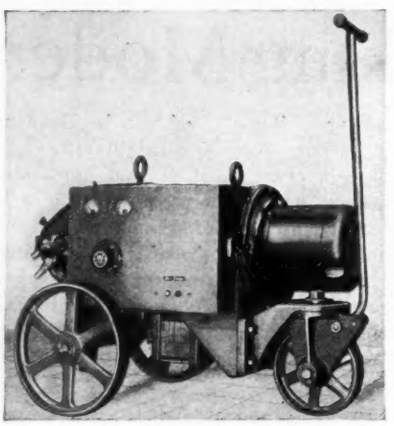
No. 86

General Electric Co., Schenectady, N. Y., announces an improved combination of electric arc welder and tractor, the principal improvements of which consists of the substitution of a new-type welding equipment and the addition of head and tail lights and a protective cover. As shown by the accompanying illustration, the equipment consists of a standard tractor made by the Ford Motor Co., belt connected to a 25-volt 300-ampere 1-hour rated 1750-revolution-per-minuate ball-bearing generator. This unit is mounted directly on the tractor and is protected by metal canopy and canvas side curtains. Other equipment includes governor, power take-off, muffler, waterproofed pulleys on engine and generator, belt and belt tightener, industrial disk-type rubber-tired wheels, extension frame, offset crank, control panel and reactor, and battery and charging control. Optional equipment includes light industrial spoke-type wheels, or standard tractor farm wheels. Over all length of the complete unit is 12 feet, the height is 4 feet 8 inches, the width is 5 feet 2 inches, and the net weight is about 4900 pounds. For field use the unit will haul equipment and tools to the job.

Portable Welder Is for Shop or Field Use

No. 87

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has designed a 200-ampere single-operator arc welding set to meet every requirement in both shop and field and to serve all applications within its rating with speed and economy. This new unit, which is shown in the accompanying illustration, is simple in operation and compact in construction. The set is started by connecting directly across the line by means of a linestarter and a linestart motor



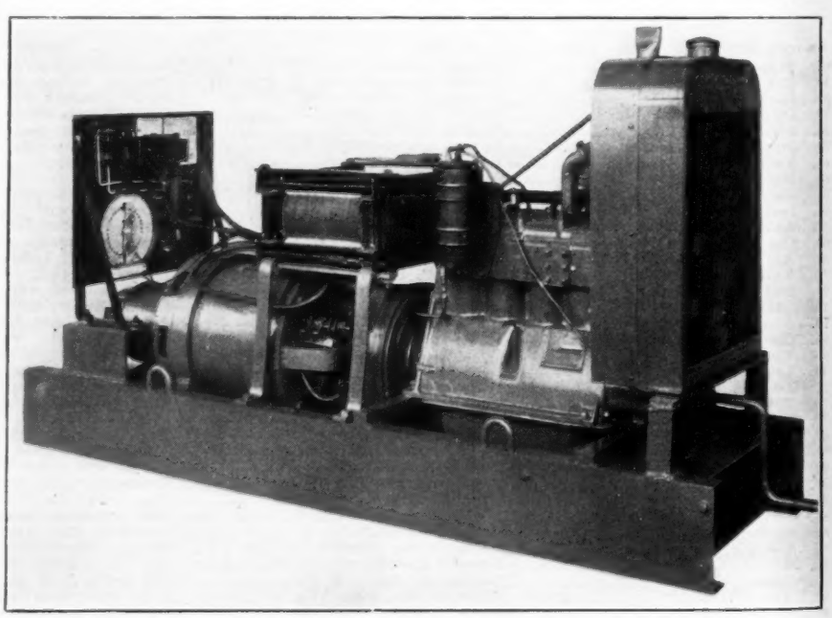
No. 87—Portable arc welding set

through a pushbutton. A single rheostat varies the arc current over the entire welding range. Accurate adjustment over the welding range, from 60 to 300 amperes, is afforded by steps of 5 amperes. The motor-generator and control equipment are assembled in a totally-inclosed frame. The exciter, which is overhung from the motor end, is securely fastened to the unit frame. In performance tests welding operations were carried on while the sets were suspended at every angle that could possible be required in any application. Steady welding current, insuring thorough penetration and fusion of the weld, is obtained from a constant-current generator.

Welding Machine Driven by Gasoline Engine

No. 88

Lincoln Electric Co., Cleveland, is announcing a new gas-engine driven electric arc welding equipment which has a rating of 200 amperes with a current range for welding duty of from 50 to 300 amperes and operates at a speed of 1500 revolutions per minute. Motive power is provided by a 4-cylinder gasoline engine manufactured by Continental Motors Inc., Detroit. The welding generator and engine are mounted on a structural base welded into a solid piece of steel. This welded base provides a maximum stiffness and rigidity with a minimum of weight; the whole unit weighing only 1580 pounds and being only 76 inches long and 25 inches wide. The generator is constructed of steel with the complete magnetic circuit of laminated steel structure, which, it is claimed, increases the stability of the arc. A steel switchboard is provided in place of the usual slate or composition.



No. 88—Arc welding machine driven by gasoline engine

Diesel Engine Designed for Oil Well Work

No. 89

Fairbanks, Morse & Co., Chicago, is building a multi-cylinder diesel engine for drilling oil wells and having the necessary degree of portability. This engine has either 4 or 6 cylinders and is of the standard 2-cycle construction and has a bore of 6 inches and a stroke of 6½ inches with a continuous rating of 60 and 90 horsepower. The manufacturer states that the 4-cylinder unit should be good for a range of 2600 to 3000 feet and the 6-cylinder engine for depths beyond these.

Designs New Air Filter of Unit Type

No. 90

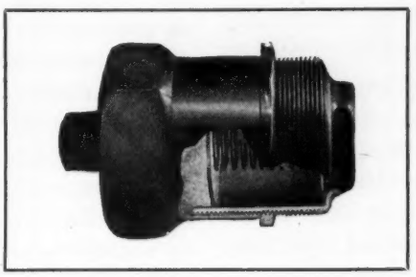
National Air Filter Co., Chicago, has placed on the market a new unit-type air filter for cleaning air used in cooling large motors, compressed air and similar purposes. A blanket of cellulose material is the dirt-collecting medium. This material, developed specially by the Kimberly-Clark Co., Neenah, Wis., consists of a mat of many layers of extremely fine cellulose fibers. Tests have shown this new medium to have surprisingly high efficiency in stripping the air passed through it not only of the most minute particles of solid matter but of particles of oil and oily soot. A single filter unit consists of a sheet metal box 12 inches high, 24 inches wide and 24 inches long with a filtering capacity of 1000 cubic feet of air per minute. These units can be used singly or placed in multiple installations of any capacity as shown in the illustration. In addition to the 1000 cubic foot unit-type filter, a continuous filter has been developed for applying the dirt-collecting medium. The filter blanket is fed on a drum from a continuous roll and as the exposed part of the blanket becomes choked with dirt, the loss of head in the air flow automatically actuates the drum and fresh filter blanket is fed into place.

No. 90—Unit type air filter

Improvements Are Given to Grease Cup

No. 91

Hunter Pressed Steel Co., Landsdale, Pa., recently has improved its compressed air grease cup both in operation and appearance. The cup, which is shown in the accompanying illustration, now is supplied with a cadmium finish which is bright and clean and permanently rust-proof. The internal construction is equipped with a high-grade leather washer that rides on a piston which is so constructed that it can not become jammed in the cylinder. These improvements are said to have increased the efficiency and economy of the cup.

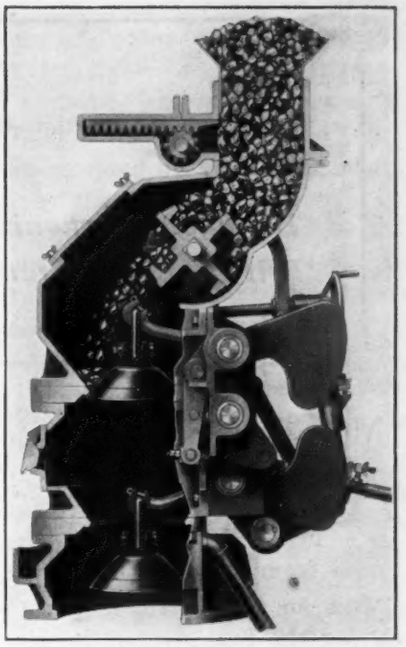


No. 91—Improved type grease cup

Perfects Coal Feeder for Gas Producers

No. 92

Wellman-Seaver-Morgan Co., Cleveland, has perfected a double-bell fuel feed for gas producers which utilizes a new operating principle. As is to be seen from the accompanying illustration, two bells are used, and these lower and rise alternately in passing the fuel into the producer. Their operation is mechanically automatic, requiring but a fraction of a horsepower which is supplied by the producer motor, and their action is so timed that when one bell is open, the other is closed. The bells and seats are of special alloy steel, machined to secure a closure of a spherical surface against the circular seat. This compels gas tightness even when the parts are worn from long use. The rate of feeding is regulated by the upper rotating fingered vane-wheel, through the control traveling nut, screw and handwheel. At the top of the feed is a shutoff valve section, which, when closed, stops the flow of fuel from the overhead bin. Any granular fuel may be used, such as bituminous or anthracite coal, coke or lignite, in any size from slack up to 3-inch lumps. The new feed is made in two sizes—one having a capacity up to 5000 pounds of coal per hour and the other having a capacity up to 1000 pounds. It is claimed that the use of this feed insures an even distribution of the fuel in a sprinkled layer on the fuel bed.



No. 92—Gas producer coal feed

Industry Lacking Modern Tool Equipment

(*Concluded from Page* 883)

motive, to buy equipment more liberally, there is a feeling that more and more machine tools users are realizing that increase of profit is to be gained by the use of newer equipment of more productive types. One well-known authority states that there is really no surplus or over-capacity of new equipment, because not every factory is completely equipped with the most economic equipment. Some old equipment still is being used in places that require more modern types. This fact shows that there is an actual shortage of new equipment. According to this authority, the problem of the equipment industries is to convince the users of obsolete equipment that they are short on new equipment, and then get them to buy it.

Editorials

'Too Rapid Mechanization' Old Cry
'Drive Yourself' Cranes Cut Sales
Merchant Stacks Off; Output Up
Ore Steady as Products Fluctuate

More Machinery Needed—Not Less

A VERY old economic fallacy is again rearing its head to plague American business. It must be driven back into the limbo from which it is now creeping forth.

Due to the slight increase of unemployment during the past winter the story has been going around that American industry is over-mechanized —that too many machines are being employed and that the adoption of labor-saving machinery has been too rapid. It is inferred that more jobs would be available if fewer machines were used.

If it were not that some of this propaganda is being endorsed in high places by men who ought to know better, one would think that we were back in England in the dawn of the industrial era when workers in Lancashire smashed the first power looms.

Senator Smoot, in discussing the report of the department of labor on unemployment in a recent speech, attributed some of the unemployment now existing to the rapid development of labor-saving machinery. He called upon employers who install such devices to assume responsibility for finding work for the men displaced. Shallow thinking, politically minded labor leaders in various sections of the country have pounced on this idea as a means of bolstering their waning popularity among their followers. One of the Wisconsin labor socialists recently said, "I believe the main trouble can be traced to the continued and rapid trend of industry to reduce labor with automatic machinery and other devices."

Statements like this from a certain labor leader are to be expected, but when the same fallacious theory is expounded by men with the experience and ability of Senator Smoot and by some business men as well, it is time to call a halt.

It is unnecessary to point out to the readers of this publication that it would be impossible to make the processes of production too automatic. If they could be made completely automatic so much the better for everyone. Men occupying key positions in industry, however, should rise to the challenge embodied in the false economic doctrines regarding labor-saving machinery which are now being disseminated, and do their part to educate the public at large to a correct perspective on the situation. Otherwise in this campaign year we may find that the progress of our industrial development is hampered.

The way things go in this country it is possible for the kind of talk which is now going around to lead to the introduction of bills to control the ratio of men to machines in industrial operations, or to pay doles to idle men. The continuance of the marvelous development which has enriched the lives of millions of men in average circumstances in this country is dependent to no small degree upon the soundness of the economic ideas held by the mass of the people. Here is a challenge industrial leaders cannot ignore.

They know that progress is relentless; that with scientific men exploring such problems as ether drift and its application to electrical energy, the world will no more stand still now than when James Watt was experimenting with his mother's teakettle.

Leaders of industry know, too, and should point out to the public at large that there is no simple short-cut solution for the situation in employment which has existed this past winter. In a country developing as rapidly as the United States a certain amount of maladjustment is inevitable. It is up to business men to study the situation constructively and to minimize the shocks resulting from rapid industrial development. This can be done, and the surplus credit available in our banks offers one solution.

It is thoroughly understood of course by those who have studied the situation that as men are thrown out of employment in certain industries, due to the development of labor-saving machinery, more men are taken into purely service occupations. There is practically no limit in this direction. Witness, for instance, the thousands of men now operating gasoline-filling stations.

Furthermore, the more rapid the adoption of labor-saving machinery, the more quickly can in-

dustry bring about further general reductions in the hours of labor. The 8-hour day is no more sacrosanct than was the 12-hour day. As fast as machines can be developed to do the work, men are entitled to greater leisure. This in itself increases both consumption and employment.

Finally industry must meet the challenge in the present situation by still greater research effort in the fields of both pure and applied science—work which leads directly to the establishment of entirely new industries.

If any unemployment has been caused by the rapid adoption of labor-saving machinery, the only possible remedy lies in the utilization of still more machinery. This has been proved time and again in the industrial history of the past two-hundred years.

Ferroalloys Gain, Pig Iron Drops

AN INCREASE of 4.91 per cent in production of ferroalloys in 1927 compared with a decrease of 7.34 per cent for pig iron is the development of significance in the official compilation of the American Iron and Steel institute.

Manufacture of ferroalloys in 1927 totaled 707,413 gross tons, against 674,312 tons in the preceding year. Ferromanganese production decreased 25,265 tons, while spiegeleisen increased 24,505 tons, thus the total for these two alloys practically equalled the 1926 output. It is known, however, that imports of these metals decreased sharply last year. Steel production in 1927 was about 4,000,000 tons lower than in 1926, therefore, the restricted demand for ferromanganese and spiegeleisen as recarburizers affected imports rather than domestic production.

Ferrosilicon made a gain of 32,672 tons, or 13.3 per cent last year and was chiefly responsible for the overall increase in production of ferroalloys.

In pig iron, all grades showed a loss with the exception of malleable, which gained only slightly. Merchant iron, or iron made for sale, represented 25.9 per cent of the total, against 24.6 per cent in 1926, this in spite of the fact that fewer merchant furnaces were active during the year.

Trade-Ins Are Retarding Crane Sales

LOCOMOTIVE crane sellers report that militating against the sale of new equipment now more than ever before are at least four deterrents. These are: 1.—Road contractors as a general rule rent locomotive cranes for the duration of the job in hand rather than purchase new; 2.—Some buy used locomotive cranes demanding the same guarantee as on a new one, or else they are granted 30 days free trial; 3.—Whereas used equipment is supposed to be sold on a cash basis, buyers are consistently insistent in their demands for time; and 4.—In almost every case the buyer of a crane, whether new or used, has something to offer as a "trade-in."

The problem is augmented by the large amount of equipment already taken in on trade; for instance, one prominent locomotive crane builder has a collection of at least $100,000 worth of shovels, scrapers, mixers, rollers, dump wagons, etc., taken in as part payment on locomotive cranes, and the potential avenues for the disposition of this equipment are negligible. In some of these respects, the problem of the locomotive crane builder is similar to that of the automobile manufacturers.

In the meantime, prices never were more keenly competitive, and more and more the locomotive crane manufacturers are calling upon their salesmen to utilize all of their sales ability—pure order-takers are being eliminated. The salesman who knows his product and is able to tell of its superiority is the producer.

Iron Ore Prices "Stabilized"

IF PRICES of Lake Superior iron ore are reaffirmed on the basis of 1927 values, as now appears probable, this will be the fourth consecutive year of their repetition, the longest period of an unbroken price level in the history of the industry. A duplication of prices for two years has not been unusual. When those for 1925 were applied in 1926 and again in 1927 a record was set for a quarter of a century. Action this year may set an entirely new precedent.

This era of stabilized ore prices is the more remarkable when it is considered that prices of pig iron and steel fluctuated from year to year fully as much as when ore values changed each season. In the spring of 1925 when the first sale of ore for that season was announced, foundry pig iron was $21, base, valley. The following year it was $20.50. In the spring of 1927 it was $18.50, and now it is $17.25. Steel prices have shown a rising tendency, giving some ore producers the hope their market may strengthen. On the other hand, there has been little disposition on the part of buyers to force ore prices down.

For several years the Ford Motor Co.'s purchase in the open market has been an important factor in establishing prices, and has been a strong influence in stabilizing them. The importance of the right viewpoint at this source cannot be overemphasized. It must be appreciated that to weaken ore prices would tend still further to demoralize the steel industry, whose earnings are about one-fifth of the automobile industry on capital investment.

The Readers' Round Table

Outlines Plans for Remodeling Antitrust Laws To Meet Modern Conditions

To the Editor:

THE writer is one of 17 of a committee on plan and scope appointed March 16 by the National Civic federation to lay out plans for an immediate investigation and report on antitrust legislation. The committee hopes to get this work done before the national republican and democratic conventions. My effort in this at the start will be directed along two lines:

1. Getting consideration of antitrust legislation in all its phases, including the labor aspect, separated from the purely labor question not affected by the Sherman law.

2. Urging the federation to bring together a few of the larger basic industry trade associations, such as steel, oil, coal, cotton, wool, rubber, etc., to consider a combined National Trade association sponsorship of an Association for Revision of Our Antitrust Laws, and for public education to be financed on the sales tax principle which would cost individual members of trade associations something less than one one-hundredth of 1 per cent of their annual gross sales. What unit, large or small, could be burdened by such a contribution? And what an astounding revenue could be thus easily provided.

My suggestion is that we retain the antitrust and monopoly prohibitions of the Sherman act, but where "restraint of trade" is mentioned change it to "unreasonable restraint of trade," defining "unreasonable restraint" as a case where the restraint upon one party or upon the public is greater than protection of the other party's interest requires, with equal weight given to the legitimate interests of capital, labor and consumer.

Then, adopt the provision of the Australian act which requires that in case of complaint to the government, the government may, if such complaint seems warranted, summon the offending industry to show cause why its practice has not been in violation of the law, with the burden of proof transferred from the plaintiff to the defendent. Thus, there would be no other specific prohibition than the creation of trusts, monopolies and unreasonable restraint of trade under such a law, and unfair methods of competition as prescribed by the Federal Trade Commission act. Each case would be decided upon its merits, presumably by the Federal Trade commission, and a warning or penalty or criminal suit be determined by that body in the light of the facts disclosed at such a hearing.

The striking feature of such a procedure, however, would be the compulsion to consider the right of an industry, representing capital, efficiently conducted, to a reasonable return upon its investment before it would be the right of the consumer to a lower price that would otherwise impair that necessary fair return to capital, and therefore the assurance of an impartial atmosphere and a true economic philosophy at such a hearing. In other words, business would have only its conscience as its guide with the government having the power to pass upon and act upon the effect of that conscience upon the public interests. Such a law and such a philosophy would seem to be simplicity as compared with the present philosophy upon which even the Supreme Court cannot think in a straight line for a decade at a time.

J. H. WILLIAMS, *J. H. Williams & Co.*

Buffalo, March 28, 1928.

The Shop Needs the Apprentice

To the Editor:

WHY is it that young men of today are reluctant to enter machine shops as apprentices? In former days when a boy elected to serve an apprenticeship he was considered as fortunate because it was felt that his future was more or less assured. While the present age admittedly is the day of specialists, industry still needs men whose training is general enough to give them expertness in each established trade.

It has been proved that the apprentice system is a paying proposition from a purely business standpoint. A good system properly administered affords an opportunity for reducing labor turnover. The law of averages is bound to give the employer a certain number of good dependable men, who being vocationally bred into his policies, aims and products, can be placed in the organization. Men of this type are an asset to any company.

Even though a percentage of the apprentices are lost to other companies at the end of their training period, the company in question is benefited in proportion to the number they are able to hold. This is controlled largely by the ability of those in charge of the apprentice system. The average shop foreman is not equipped by attitude or training to handle the boys, and therefore should come in contact with them only to designate their work.

The apprentices who stay with the company naturally are going to form the nucleus on which the working force is to be built, and they will be largely responsible for the morale of the newcomers. There have been instances where a small force of apprentices have been known to sustain a production load of 25 per cent of the entire shop. Under these conditions the boys fully appreciate their responsibility, and this knowledge usually is an additional incentive to good work.

In most plants where the apprentice system is employed, the human element is not given its proper attention.

"EMPLOYER."

IRON TRADE REVIEW

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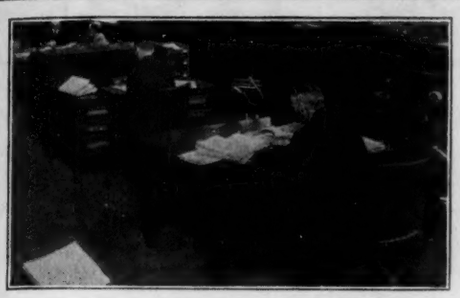

Making the Most of Your Sales Opportunities. Page 865.

ANOTHER article which shows the absurdly low profits of the steel industry in comparison with those of large consumers of steel is published in this issue, beginning on page 879. The average for 11 automobile manufacturers in 1927 was 28 per cent; for 11 makers of automobile parts 12.76 per cent, and for 11 leading steel producers 5.24 per cent. Last week it was shown that the average for 19 various industrial companies using large tonnages of steel was 18.76 per cent. What is wrong with the steel industry that profits are so unbalanced?

The Readers' Page

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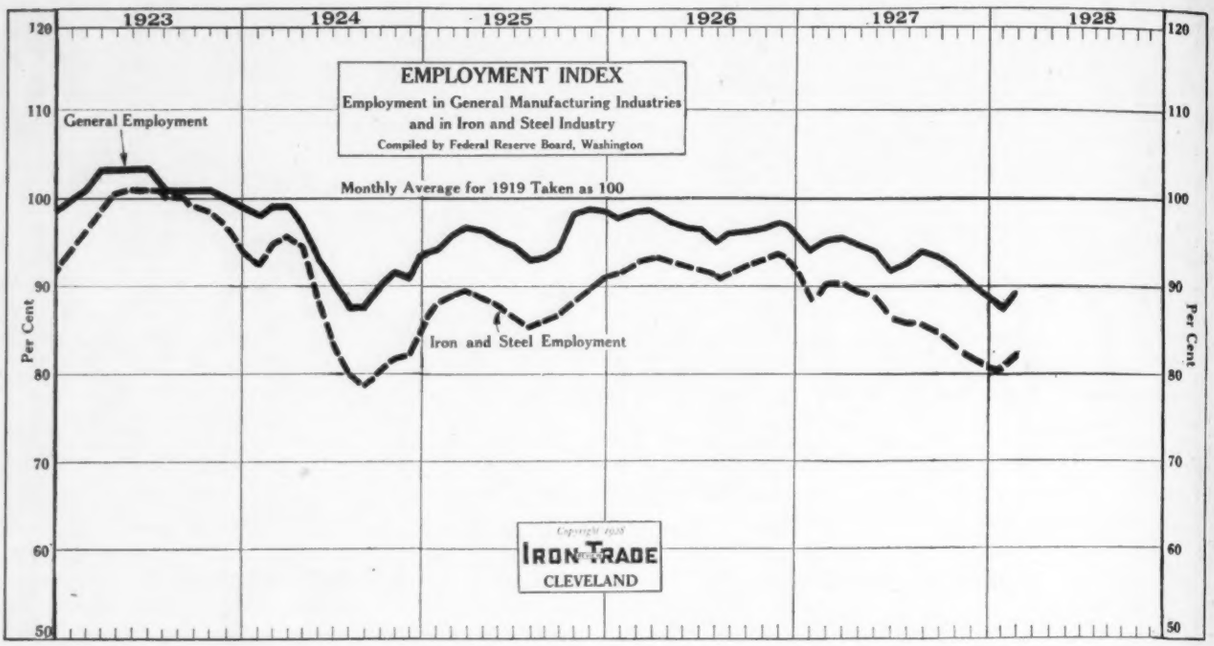
The Business Trend



Unemployment Situation Improving

BY JOHN W. HILL, Financial Editor

WITH the advance of the season one of the most disturbing factors in the business situation over the winter, that of unemployment, is showing steady improvement. The accompanying chart, based upon figures computed by the federal reserve bank of New York, shows that betterment was already under way as early as February.

AFTER remaining for two months at the lowest levels in several years, factory employment in February increased nearly 2 per cent. This was a slightly larger than normal gain, and it was the first advance in the curve, in which allowance is made for seasonal variations, since last June. Expansion of activities in the iron and steel industry is reflected in better employment, as well as in general industry.

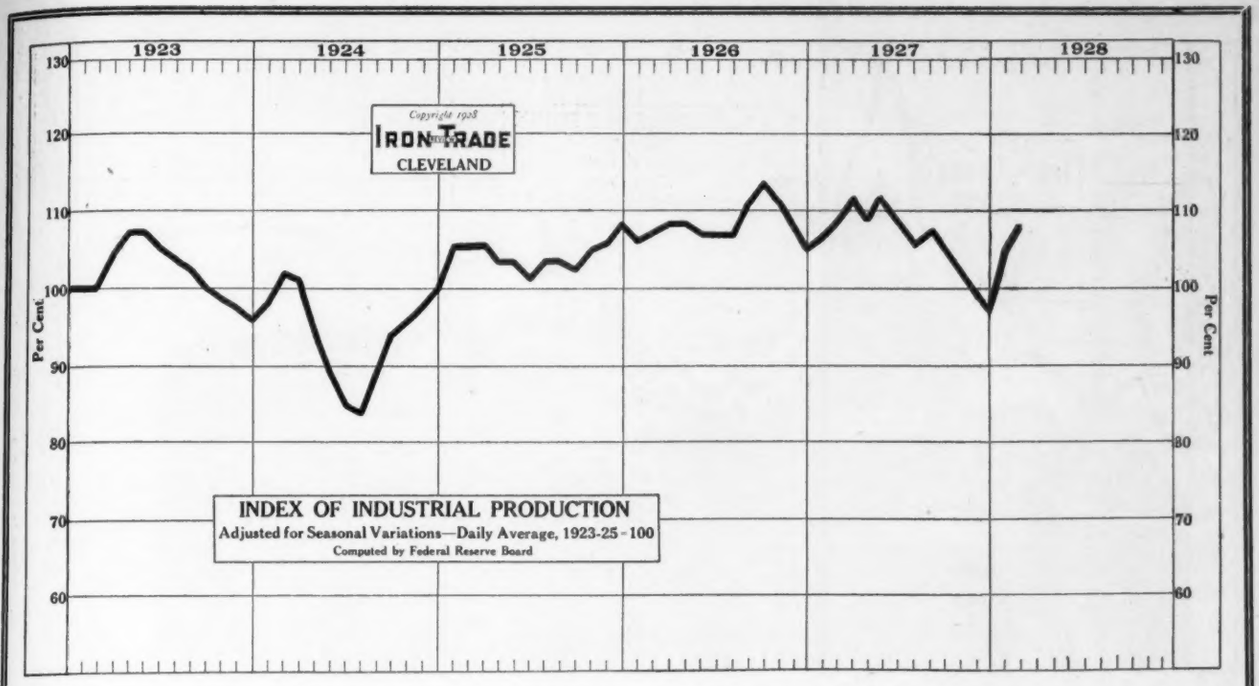
LATER evidence as to the employment situation was brought forward a few days ago by Secretary of Labor Davis, who issued a report on the findings of a partial survey made in response to a senate resolution. This report indicates that there are now 1,874,000 unemployed persons in the country, a figure about one half the total of 4,000,000 estimated by some.

THE labor department estimated that there are 23,348,692 wage earners today compared with 25,222,742 in 1925, which was accepted as an average year. This constitutes a shrinkage of 7.43 per cent since 1925. What is important is that with the steady upward curve of industrial activities more people are finding employment.

WITHIN recent weeks the country has been witness to the most active stock market of all time. Prices of numerous shares have leaped to unprecedented heights and the volume of trading has been staggering. It is usual for a market like the present to be described as wildly speculative and to some extent that is true. But, the stocks that have been most in demand are those for which earnings prospects are best.

IN THAT respect, the recent bull market was prophetic for business. One of the great stock exchange leaders, General Motors, has been rising because of large production and sales of its product, a fact aided by the tardiness of Ford in getting cars made. But an adverse stock market factor is appearing in the rise of money rates, encouraged by increasing gold exports and a larger demand for money.

The Business Trend

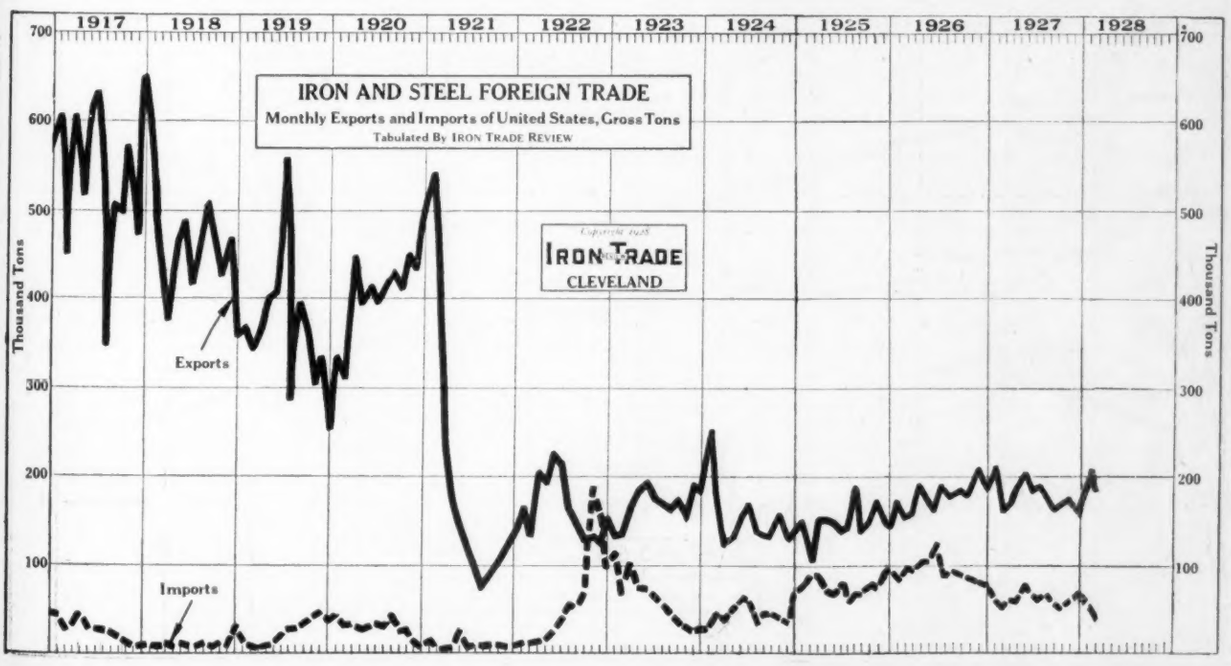


Industrial Production

INDUSTRIAL production is increasing, according to the index compiled by the Federal Reserve board. In February production increased to an index of 108 compared with 106 in the preceding month, and 99 in December. The production of minerals declined slightly in February and continued to be substantially smaller than last year. Standing at 108 the index compares with 109 in February, 1927, and with 107 in February, 1926. Chief gains have been noted in the steel and motor car industries.

Steel Foreign Trade

EXPORTS and imports of iron and steel declined in February. Exports of 185,915 tons compared with 205,766 tons in January and with 166,128 tons in January, 1927. Imports of 47,628 tons compared with 58,635 tons one month before. Imports in February, 1927, totaled 49,451 tons. The largest losses in exports in February were for rails, rail fastenings, boiler tubes and black steel sheets. There were gains for plain structural shapes and steel bars. Principal losses for imports were in pig iron and rails.



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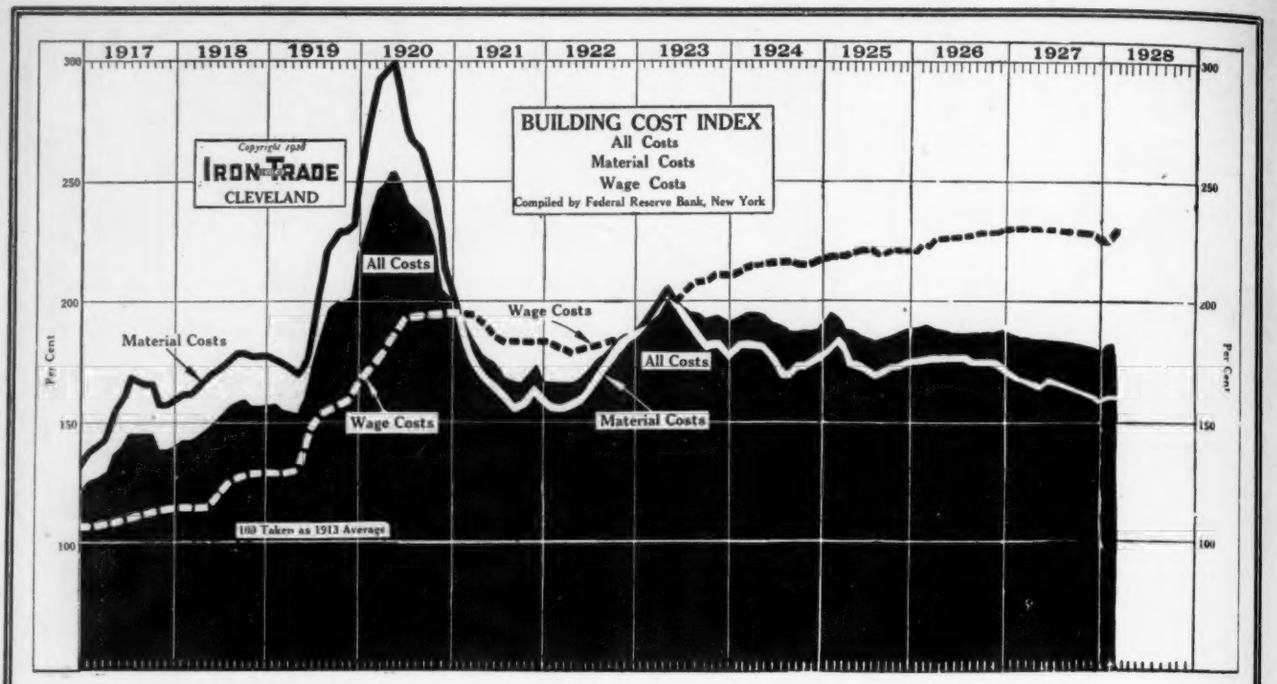
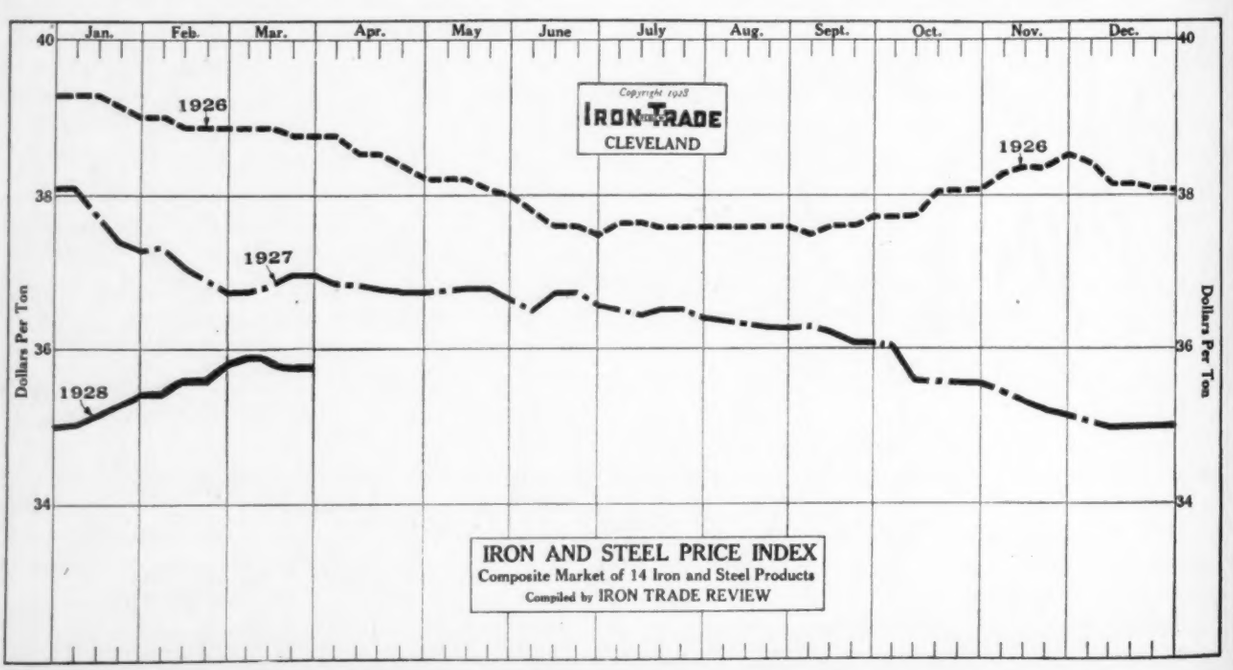


Building Costs

THE most interesting phase of the index of building cost as compiled by the Federal Reserve board of New York, is the fresh increase in wages of building labor. Standing at 130 per cent over the prewar level in February the wage index was back at the peak for all time which was touched in October. One year ago the index was 129 per cent above the prewar level. Material costs at 57 per cent over the 1913 base compared with 68 per cent one year ago. Total costs were 57 per cent over the 1913 base.

Steel Price Index

FOLLOWING a steady increase since the beginning of January, IRON TRADE REVIEW'S composite market average of 14 leading iron and steel products declined in the middle of March. The weakness resulted from the recession in prices of black sheets, bessemer pig iron, and the willingness of Pittsburgh district mills to continue selling heavy steel at $37 a ton instead of asking the full advance of $38 a ton. In the last week of March bessemer pig iron regained its lost ground and the composite gained.



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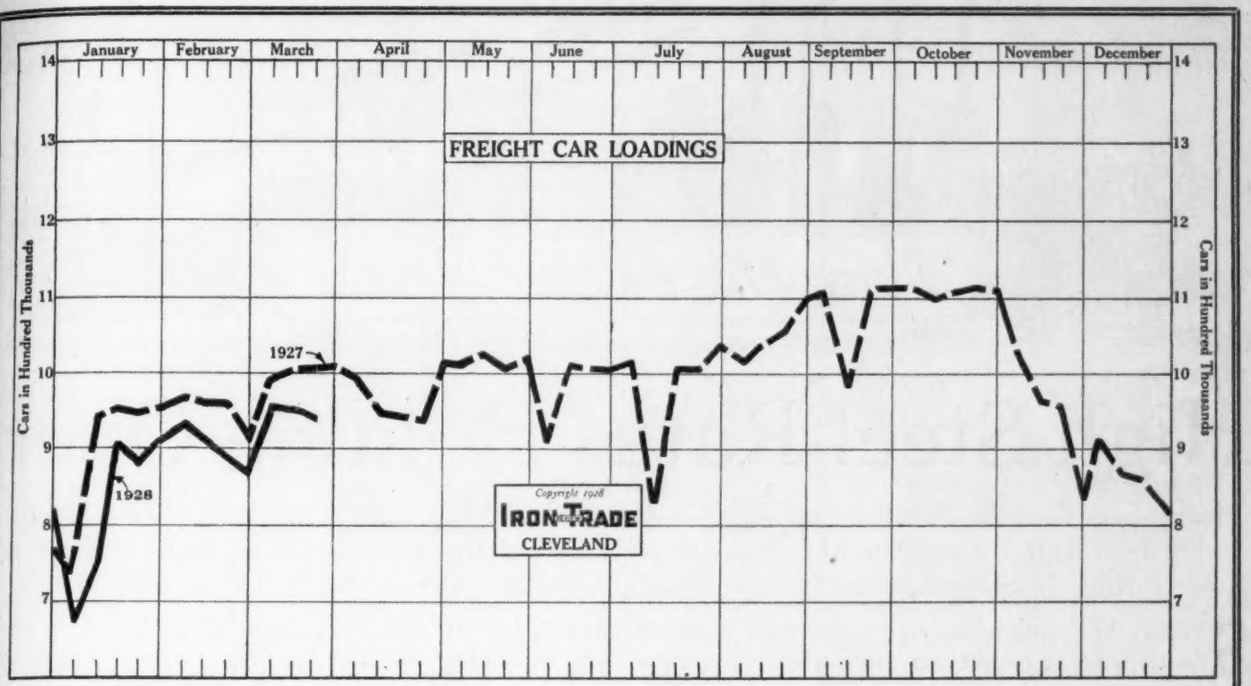
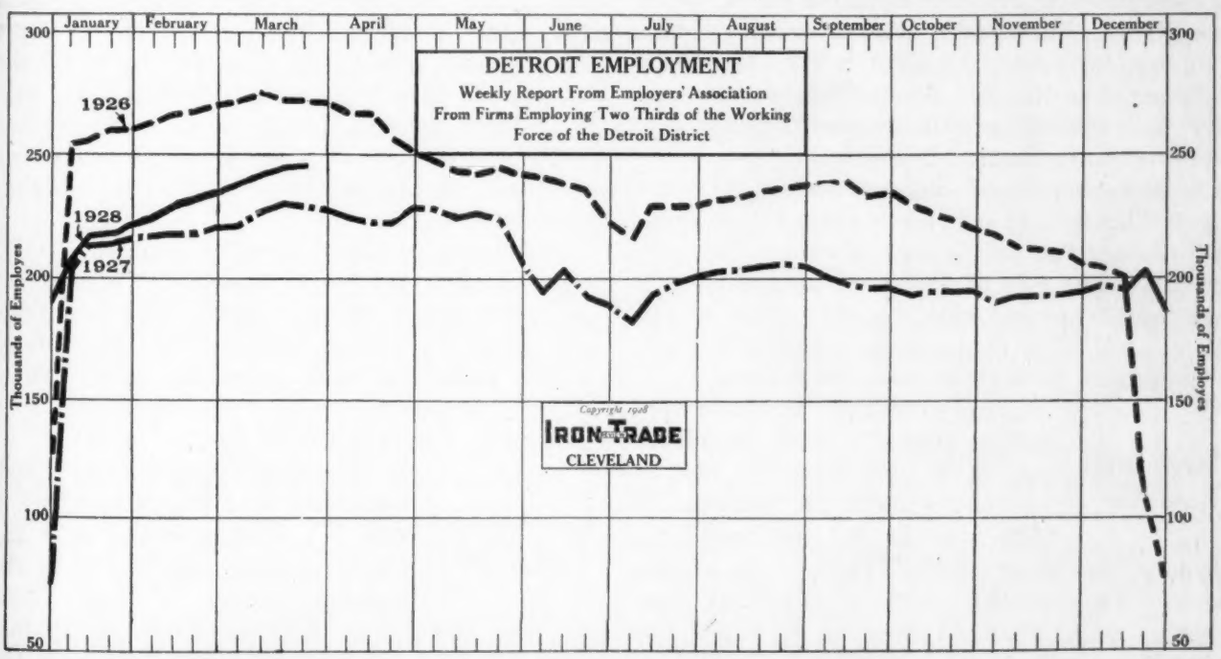


Freight Car Loadings

FREIGHT traffic continues to run below the level of one year ago, largely due to the decline in loadings of coal. During the week ended March 17 loadings of revenue freight were 942,086 cars, a decline of 59,846 cars below the level of the corresponding week of 1927 and 34,932 cars fewer than two years ago. Miscellaneous and less than carload freight, which reflect general trade activities, showed gains of 7847 and 2467 cars respectively over the week before. This indicates some increase in general trade.

Detroit Employment

THE automobile industry is throwing a powerful stimulant into the general business situation. This is indicated by the steady gain in employment in the Detroit district. The Detroit employers' association for the week ended March 27 reported pay rolls totaling 245,716. This was an increase over the preceding week of 2300 and an increase over the corresponding week of one year ago of 19,408. Motor car makers are speeding outputs against the accumulated demand of one year ago.



High Steel Rates Holding Over

Heavy Specifications Against Expiring Contracts Give Makers Impetus Into April—March Pig Iron Rate Best in Ten Months, with 10 More Stacks Lighted—Jobber Price on Pipe Raised—Sheet Market Spotty—Ford Closing on Ore—By-Product Coke Sags

STEEL has embarked upon the new quarter with market conditions more auspicious than the industry foresaw thirty days ago. Heavy specifications in the final days of the quarter against expiring contracts have neutralized the slack in new buying and assure continuance of current high operating rates well into April at least. This is the more heartening because March was a record ingot month for some producers—possibly for the entire industry—and a letdown would not be illogical.

Three successive increases in production have not exhausted the automotive industry, whose further steel commitments, while made more cautiously, indicate April may make it four. Oil country buying of line pipe and tanks has been heavier. Inquiry for structural steel is broader and some districts evidence inauguration of spring roadbuilding. Carbuilders, confronted with diminishing backlogs, have specified heavy steel products generously the past week. Because less normally is expected of the second quarter the general market situation is less tense.

The disinclination of some consumers to cover fully for the second quarter is regarded more an omen of unsettled prices than of contracting consumption. The role of producers apparently will be to consolidate and hold the price gains of the first quarter. The tendency to extend first quarter quotations is slightly more pronounced.

March Iron Rate Up

Pig iron production in March kept fully in step with steel. The daily rate of 103,493 tons, the best in 10 months, was an increase of 3539 tons or 3.5 per cent over February, but short of the 112,326 tons of last March. The month's total of 3,208,281 tons compares with 2,898,668 tons in February and 3,482,107 tons last March. The first quarter aggregate of 8,962,464 tons is also below the corresponding period of 1927, when 9,524,057 tons was made, but is a distinct gain over the 8,172,086 tons of the final quarter of 1927. Ten more stacks were in blast at the end of March.

Plates Active at Chicago

At both Pittsburgh and Chicago specifications for bars, plates and shapes have been well over the weekly average this year. Carbuilders at Chicago have specified out 10,000 tons of plates, and tank makers 3500 tons; new inquiry for southwestern oil tanks totals 7000 tons, with actual placements 4100 tons. Orders for bars passed to Pittsburgh mills last week made March the best month of the quarter.

Sheets show a checkered market. The full finished grade appears to have withstood assaults upon 4.15c, Pittsburgh. Large buyers in some districts have shaded other grades $2 to $3 per ton. In the East extensions to first quarter contracts have been so numerous that many users are covered through May, and a test of new prices postponed. In the Southwest resistance to higher prices is more pronounced.

Due largely to the automotive industry, strip steel specifications have expanded. March for some makers was the best month since last June. Automotive buyers are quoted 2.75c, Pittsburgh, on cold rolled but most users pay 2.90c. Some hot strip arrangements have been continued on a basis $2 to $3 per ton over the first quarter.

Car Awards Under 1927

With freight car awards in March estimated at 2796, carbuilders in the first quarter booked only 16,658 contrasted with 24,824 in the opening quarter of 1927. Railroad car shops were allotted 400 cars, against 4085 a year ago. Passenger car orders in the

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	April 4, 1928	Mar. 1928	Jan. 1928	Apr. 1927
PIG IRON				
Bessemer, del. Pittsburgh	$19.26	1921	19.26	21.26
Basic, valley	17.00	17.00	17.00	19.00
Basic, eastern, del. eastern Pa.	19.50	19.50	19.50	20.90
*No. 2 foundry, del. Pittsburgh	19.01	19.01	19.01	20.26
No. 2 foundry, Chicago	18.50	18.50	18.50	20.00
*Southern No. 2 Birmingham	16.00	16.00	16.00	18.00
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	20.50	20.50	20.50	22.00
**No. 2X, eastern, del. Phila.	21.26	21.26	20.51	22.26
Malleable, valley	17.25	17.25	17.25	18.50
Malleable, Chicago	18.50	18.50	18.50	20.00
Lake Superior charcoal del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.51	18.51	18.51	19.76
Ferromanganese, del. Pittsburgh	104.79	104.79	104.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.60	2.60	2.70	3.20
Connellsville, foundry ovens	3.75	3.75	3.75	4.05
SEMIFINISHED MATERIAL				
Sheet bars open-hearth, Youngstown	32.50	33.75	34.00	34.25
Sheet bars, open-hearth, Pittsburgh	34.00	33.70	34.00	33.75
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	33.50
Wire rods, Pittsburgh	44.00	44.00	41.50	42.50
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.85	1.90	1.80	1.90
Steel bars, Chicago	2.00	2.00	1.90	2.00
Steel bars, Philadelphia	2.17	2.17	2.12	2.22
Iron bars, Philadelphia	2.12	2.12	2.12	2.17
Iron bars, Chicago	2.00	2.00	1.90	2.00
Shapes, Pittsburgh	1.85	1.90	1.80	1.90
Shapes, Philadelphia	2.07	2.08	2.08	2.12
Shapes, Chicago	2.00	2.00	1.90	2.00
Tank plates, Pittsburgh	1.85	1.90	1.80	1.85
Tank plates, Philadelphia	2.10	2.10	2.05	2.22
Tank plates, Chicago	2.00	2.00	1.90	2.00
Sheets, black, No. 24, Pittsburgh	2.80	2.85	2.80	2.80
Sheets, blue anl., No. 10 Pittsburgh	2.10	2.10	2.10	2.20
Sheets, gal., No. 24, Pittsburgh	3.65	3.75	3.65	3.65
Sheets, black, No. 24, Chicago	3.05	3.05	3.05	3.00
Sheets, blue anl., No. 10, Chicago	2.25	2.25	2.25	2.40
Sheets, galvanized, No. 24, Chicago	3.90	3.90	3.90	3.90
Plain wire, Pittsburgh	2.50	2.50	2.40	2.40
Wire nails, Pittsburgh	2.65	2.65	2.50	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	14.50	14.75	15.35	16.50
Heavy melting steel, eastern Pa.	14.00	13.75	14.00	14.75
Heavy melting steel, Chicago	12.75	12.75	12.25	13.10
No. 1 wrought, eastern Pa.	15.25	15.25	15.25	16.75
No. 1 wrought, Chicago	12.30	12.45	12.65	13.50
Rails for rolling, Chicago	14.00	14.45	15.00	15.85

Composite Market Average

The Fourteen Leading Iron and Steel Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (April 4, 1928)	**$35.77**
Last week (March 28, 1928)	**35.71**
One month ago (March, 1928)	**35.81**
Three months ago (January, 1928)	**35.27**
One year ago (April, 1927)	**36.73**
Ten years ago (April, 1918)	**56.59**
Fifteen years ago (April, 1913)	**27.74**

first quarter, at 953, compared with a grand total of 1600 for all 1927. Chicago rail mills have booked 4000 tons of secondary rail business, and a 90 per cent operating rate at least into June seems assured.

A 5 per cent discount granted on merchant and line pipe to jobbers late in 1927 has been withdrawn, raising prices about $2 per ton.

With steelworks at Pittsburgh less disposed to take business, the merchant iron market in that district appears stronger. Action may soon be taken by a Warren, O., pipemaker on 5000 to 7000 tons of bessemer. An inquiry for 15,000 tons of gray forge for second quarter delivery may be slow in closing. March shipments of pig iron at Chicago, exceeding 100,000 tons, were the best in 18 months. Buying by melters who had held off second quarter contracting swelled the week's iron sales at Cleveland to 66,000 tons.

Beehive coke makers have lost further business in gas coke to eastern by-product interests. March shipments of beehive coke fell below February and April promises another loss. By-product coke prices in many districts are off 50 cents.

The Ford Motor Co. is scheduled to close Thursday on 400,000 tons of iron ore, the first purchase of the season and the largest in the history of the Ford company. Last year's prices probably will be reaffirmed.

Advances in pipe lift the IRON TRADE REVIEW composite of fourteen leading iron and steel products 6 cents this week, to $35.77.

Late News Flashes

Chicago Steel Rate Tops Year Ago

Chicago, April 3.—With 29 out of 36 steelworks blast furnace stacks active, the Chicago district has one less on than a year ago. Steelmaking at 93 per cent, however, contrasts with 90 a year ago.

Pittsburgh Steel Rate Nears 85

Pittsburgh, April 3.—Steelmaking in this district is nearer 85 than 80 per cent. Practically full schedules are being maintained at Vandergrift, Weirton, Midland, Wheeling, Steubenville and Monessen.

Buffalo Steel Rate Believed Record

Buffalo, April 3.—Thirty-three of the 36 open hearth steel furnaces here are making steel, a rate believed to set a record, at least for peacetime. Some steelworks are operating 90 per cent and the district's average is 85, an increase of 5 per cent over last week.

Valley Operating Rates Dip Slightly

Youngstown, O., April 3.—Strip and tin plate mills continue at as high rates of operations as autobody sheetmakers, yet the general rate of steelmaking in the valleys is slightly lower today than last week, as is seasonal at the turn of the quarter. Independent open hearths are melting at the rate of 40 out of 53, against 43 last week.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	33.30
Chicago	34.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh, Youngstown	$32.50 to 33.00
Cleveland	32.50 to 33.00
Chicago	35.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh, Cleveland	$44.00
Chicago	45.00

SKELP

All grades, Pittsburgh	1.85c to 1.90c

Standard Structural Shapes

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.07c to 2.18c
New York, del.	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland, del.	2.04c to 2.09c
Buffalo	2.00c
Bethlehem	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.35c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.10c to 2.15c
New York, del.	2.175c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland	2.04c to 2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.25c to 2.30c

Iron and Steel Bars

Pittsburgh, soft steel	1.85c to 1.90c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c
Philadelphia, soft steel	2.17c
New York, soft steel	2.19c
Boston, del.	2.265c to 2.415c
Chicago, soft steel	2.00c
Cleveland, soft steel, mill	1.85c to 1.90c
Cleveland, soft steel, del.	1.87½c to 2.09c
Birmingham (soft steel)	2.05c
Buffalo	2.00c
San Francisco, soft steel	2.35c
Pittsburgh, refined iron	2.75c to 4.25c
Chicago, reinforcing billet	2.30c to 2.75c
Pitts., reinforcing billet	1.90c
Chicago, reinforc. rail steel	1.85c to 1.95c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.85c
Rail steel, mill	1.65c to 1.75c
Philadelphia, common iron	2.12c to 2.22c
New York, common iron	2.14c to 2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hot strip, under 3-inch, Pitts.	2.20c to 2.40c
Hot strip, 3 to 6-inch, Pitts.	2.10c to 2.20c
Hot strip, 6 to 12-inch, Pitts.	1.90c to 2.00c
Hot rolled strip, 12 to 24-inch, 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 2.00c blue annealed basis, plate or sheet extras.	
Hot strip, under 3-in., Chi.	2.30c to 2.50c
Hot strip, 3 to 6-in., Chi.	2.20c to 2.30c
Hot strip, 6 to 12-in., Chi.	2.00c to 2.10c
Hot strip, 12 to 24-in., Chi.	1.95c plate base
Cold rolled strip, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pitts., Cleve., (over 3 tons)	2.75c to 2.90c
Worcester, Mass.	3.05c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pitts.	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.25c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. mills	2.80c
Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.35c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Cleveland

Alloy Quality Bar Base is 2.65c

To Moderate Size Buyers

S.A.E. Series Number	Alloy differential	Net price 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.00	3.65
3400	3.20	5.85
3300	3.80	6.45
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo., 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250	0.25	2.90

Hot rolled billets 4 x 4-in. and over take same price gross ton as same specification bars net ton. Sizes from 4 x 4-in. down to 2½ x 2½-in. same basis plus $5 a ton extra. Smaller billets take bar price on net ton basis. Slabs with section area 16 in. or over take billet price, from 12 to 16 in. $5 extra, under 12-in. bar price.

Low carbon cold-rolled alloy steels take 1.00c a pound extra over hot-rolled. When the carbon range is over 0.20 to 0.30 the extra for cold-rolled is 1.75c, including annealing.

Sheets

Sheet Mill Black

No. 24, Pittsburgh, base	2.75c to 2.90c
No. 24, Philadelphia, delivered	3.07c to 3.22c
No. 24, Gary, Indiana Harbor	3.00c
No. 24, Chicago, delivered	3.05c
No. 24, Birmingham, base	3.05c

Tin Mill Black

No. 28, Pittsburgh	2.90c to 3.00c
No. 28, Gary, base	3.00c to 3.10c

Galvanized

No. 24, Pittsburgh base	3.65c to 3.75c
No. 24, Philadelphia, delivered	4.07c
No. 24, Gary, Indiana Harbor	3.85c
No. 24, Chicago, delivered	3.90c
No. 24, Birmingham, base	3.90c

Blue Annealed

No. 10, Pittsburgh, base*	2.00c to 2.10c
No. 10, Philadelphia, delivered	2.42c
No. 10, Gary, Indiana Harbor	2.20c to 2.30c
No. 10, Chicago, delivered	2.25c to 2.35c
No. 10, Birmingham, base	2.25c

*Plus 10 cents for 40 inches or wider.

Automobile

No. 20, Pittsburgh base	4.15c

Iron

No 10, Pitts., blue ann., c.l.,	2.80c
No. 24, Pitts., box annealed, 1-pass cold rolled, carload	3.75c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plates

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.10c

*Prices subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra f.o.b. Cleveland and Pittsburgh base.

Bright plain wire, No. 9 gage	2.50c
Annealed fence wire	2.65c
Galvanized wire, No. 9 gage;	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.85c
	Per 100 lbs.
Wire nails	$2.60 to 2.65
Galvanized nails	4.65
Polished staples	3.10
Galvanized staples	3.35
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply	2.65
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb.	27.00 to 30.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., stand.	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	43.00

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

Boiler Tubes

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	46

Further discounts of five to seven 5 per cents for carloads on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal from one 10 per cent to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm	$30.00 to 31.00
Four-inch, Birmingham	34.00 to 35.00
Four-inch, Chicago	42.20 to 44.20
Six-inch to 24-inch, Chicago	38.20 to 40.20
Four-inch, New York	40.50 to 41.85
Six-inch and over, New York	37.25 to 38.25
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	70 off

MACHINE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	70 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs. 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off

NUTS

Semifinished	70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset 1-in. diam and smaller	80-10-10 off

Rivets

Struct., c.l., Pitts.-Cleve.	2.90c
Structural rivets, c.l., Chicago	3.00c
**Rivets, 7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Pig Iron

Makers Have Good Orders for Second Quarter—Shipments Continuing at High Rate—Valley Market Stronger

MAKERS of pig iron start the second quarter with well filled order books and shipments continuing at a high rate. March was a better month for shipments than either January or February, and some large furnace interests are confident April will show still further improvement. March shipments from Chicago district furnaces totaled more than 100,000 tons, the best in the past year and a half. On the price side of the picture, a stronger tone has been injected in the valley situation due to the withdrawal of some steelworks that recently were competitors. Demand for third quarter quotations is more insistent, and while several large melters are ready to close, makers are inclined to wait. Lake furnaces were the most active in the past week.

PITTSBURGH, April 3.—The pig iron market has been strengthened slightly because steel companies are less inclined to compete. A few steelmakers say they are out of the market for pig iron at present prices. One or two others are quoting the valley equivalents. A merchant interest under contract to supply gray forge iron purchased several thousand tons of No. 3 iron, dividing up the order, placing part at $16.75, and the remainder at $17. No. 2 plain still is available at $17.25, valley, but only small lots are changing hands. An inquiry is out for 2000 tons of basic of special analysis, and this may be increased to 5000 tons. No sales of basic are noted; the price is nominally $17, valley. A pipemaker at Warren, O., is about to close for 5000 to 7000 tons of bessemer iron. Another purchaser using about 1500 tons or more every three months is not yet ready to close for second quarter, because of a carryover from first quarter. Small sales of bessemer are noted at $17.50, valley. An Ohio pipe plant has iron due on first quarter contract and hence is in no hurry to close for 15,000 tons of gray forge iron for second quarter.

The average price of bessemer iron in March was $17.50 and basic $17, according to W. P. Snyder & Co. These were the same as in January and February.

Boston, April 3.—Pig iron sales in this market in the past week totaled about 7000 tons, the Mystic Iron Works booking 5000 tons of this. The Universal Winding Co., Providence, R. I., is reported to have bought 400 tons of No. 2X from the Mystic works and 400 tons of No. 1X from a Buffalo furnace. The latter was said to have been bought at less than $21.50, delivered. The Buffalo iron will be shipped by water. Figuring on all-rail rates, Buffalo iron still is available in this market at $16, furnace, for No. 2 plain and $16.50 for No. 2X. On water rates Buffalo iron is about $1 higher at furnace.

New York, April 3.—More activity has featured the pig iron market here the past week. Sales totaled 9000 tons. General Electric Co. has bought part of the several thousand tons for which it recently inquired for second quarter requirements of its various plants, and the rest is expected to be bought shortly. Singer Mfg. Co. has bought for Quebec and for Elizabeth, N. J. Worthington Pump & Machinery Corp. wants about 1000 tons for second quarter shipment to its various plants. Buffalo prices in most cases are $16.50 to $17, base, Buffalo, but as low as $16 appears now and then. The usual extras frequently are waived on the higher silicons. Eastern New York state foundry iron usually is around $18, base, furnace. Fair quantities of eastern New York iron are being sold in Canada. Eastern Pennsylvania foundry iron continues $20, base, furnace. Dutch iron usually is $21 to $21.50, duty paid, and Indian iron usually is $20.50 to $21, base, duty paid. Part of the selling in the East the past week involved Buffalo iron to be shipped by barge to New York harbor. The usual rate by barge from Buffalo to New York harbor is $2.50 per ton, but $2 is reported as being done.

New York Air Brake Co. is inquiring for 500 tons of charcoal iron.

Buffalo, April 3.—Pig iron inquiries and sales are small. One or two Buffalo makers are quoting a minimum of $17, base, furnace, but a large buyer could command a better price for outside shipment. Operation is holding up well, with steelworks using more iron than at any time this year.

Bethlehem Steel Corp. has decided that two of its nine blast furnaces at Lackawanna are unfit for economical production and will not use these units again. This reduces the actual number of furnaces in this district, capable of producing iron to 19, as the Charlotte furnace has been razed. One other old merchant furnace probably will be dismantled soon.

Cleveland, April 3.—Pig iron sales booked by furnace interests at Cleveland in the past week amounted to 66,000 tons, more than four times the total of the week preceding. One reason for this increase is that some buyers held off until the beginning of a quarter before placing orders. A considerable proportion of the tonnage was placed by Ohio melters. Chicago reports that some large tonnages have been booked by middle interests for shipment from Cleveland to that district by boat during the second quarter. Buffalo iron also will be shipped to the Chicago district, as previously noted. The important consumers of pig iron previously covered for second quarter. Some inquiries have been received for third quarter, but makers say they are not quoting. One melter wants prices on 2000 tons for third and fourth quarter. Shipments continue satisfactory, leading merchant producers reporting April tonnage is likely to be the highest this year to date. One lake furnace had the largest first quarter shipments in history. Shipping instructions from some consumers in the Michigan and Indiana territory, however, are not so large as a few weeks ago. Lake furnace prices are steady.

Cincinnati, April 3.—Pig iron sales

(*Concluded on Page* 911)

Pig Iron Prices

Per Gross ton

Bessemer, valley furnace	$17.50
Bessemer, del., Pittsburgh	19.26
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.13 to 18.76
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	19.25 to 20.25
Malleable, valley furnace	17.25
Malleable, del. Pittsburgh	19.01
Malleable, del. Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa	20.00 to 21.00
No. 1 foundry, Chicago furnace	19.00
No. 1X, eastern del., Phila.	21.76
No. 1X, Buffalo furnace	18.50
No. 2 foundry, valley furnace	17.25
No. 2 foundry, del., Pittsburgh	19.01
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.50
No. 2 foundry, del. Phila.	20.76
No. 2 Virginia furnace	20.00 to 20.50
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east N. Y. fur.	18.00
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del. Cincinnati	19.69
No. 2 Tenn., Birmingham base	16.00
No. 2 Tenn., del., Cincinnati	19.69
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago, river-rail	20.18
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X, east. N. J., tidewater	20.28 to 21.26
No. 2X, eastern, del. Phila.	21.26
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	23.15 to 23.65
No. 2X, Virginia furnace	20.50 to 21.00
Gray forge, val., del., Pittsburgh	18.51 to 18.76
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.76 to 27.29
Low phos. copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron, Jackson county (Ohio) furnace, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

Coke

Foundry Fuel Shipments Falling Off—By-Product Prices Reduced —Buy Little Furnace Coke

SHIPMENTS of Connellsville foundry coke in March were less than in January or February, and April begins with a still lower trend. Prices of by-product foundry coke have been revised 50 cents downward in some of the principal markets. Blast furnaces have covered for second quarter. A reciprocal arrangement for Connellsville fuel was made by one furnace equivalent to $2.75.

Pittsburgh, April 3.—One block of Connellsville beehive coke for second quarter delivery to a blast furnace has been sold under a reciprocal arrangement, and the price basis is understood to be $2.75. Other negotiations started recently by gas producers have been closed with eastern by-product coke makers. The first and largest of this group, as noted two weeks ago, was for approximately 300,000 tons for delivery in 12 months beginning April 1. Another contract was closed in the past week for one-third or one-half that tonnage. Two or three inquiries involving up to 50,000 tons a year now are current, and $3 is quoted. The Shenango Furnace Co. is understood to have extended its first quarter arrangement. No other blast furnace coke business is under negotiation. Spot market transactions are noted at $2.75, but occasionally odd lots are sold at $2.60 to $2.65. Shipping instructions for foundry coke are smaller. The March total was less than that for either January or February. One maker reduced his price from $4.50 to $4.25 without stimulating sales. Active buyers are inclined to take the cheaper grades at $4 and less. Makers of premium brands still are actively shipping on $5.10 contracts.

Production of coke in the Connellsville region in the week ended March 24 was 66,700 tons, compared with 64,170 tons in the preceding week, according to the *Connellsville Courier*.

Boston, April 3.—By-product foundry and domestic coke has been reduced 50 cents a ton for April. The foundry grade now is $11 and domestic $8, delivered. The movement of foundry coke has improved slightly.

Detroit, April 3.—Foundry coke shipments are being maintained at the high rate of the past 60 days. One shipper finds business comparing with previous years except 1927, when foundries were stocking coke as the bituminous coal strike opened. Foundry coke is $9, Detroit ovens. Domestic egg coke is $6, delivered Detroit dealers' yards, a reduction of $1 per ton, while nut coke, now also $6, is off 50 cents. Other domestic grades are unchanged.

Cincinnati, April 3.—A general reduction of 50 cents per ton on by-product foundry coke is noted, Ashland and Portsmouth dropping to $7, and Indianapolis to $8.75. Birmingham coke is quoted here at $3.50 to $4.50, and St. Louis $9. Foundry specifications are slightly less active than a week ago.

St. Louis, April 3.—Demand for metallurgical coke is well sustained, specifications being in satisfactory volume and new buying fairly brisk. Stockpiles of users on an average are considerably smaller than a year ago. The present rate of foundry coke consumption is likely to continue through second quarter.

Birmingham, Ala., April 3.—Coke shipments are improving. The movement north of the Ohio river is better than ever. The Alabama By-Products Co. shipped 1000 tons of foundry coke via Pensacola, Fla., and steamship to the Pacific coast. Prices are steady.

Coke Prices

Beehive Ovens

Prices per Net Ton

Connellsville furnace	$2.60 to 3.00
Connellsville foundry	3.75 to 4.75
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county, foundry	5.00 to 5.50
Wise county furnace	4.50 to 5.00
Alabama foundry	5.00

By-Product Foundry

Newark, N. J., del	9.00 to 9.40
Chicago, ovens	9.00
New England, del	11.00
St. Louis	9.00
Birmingham	3.50 to 4.50
Indianapolis, del.	8.75
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	9.00
Buffalo, ovens	8.50 and 9.00

Ferroalloys

Specifications Increasing—Shipments Are Heavy

New York, April 3.—Specifications on ferromanganese contracts continue to increase, and shipments in second quarter are expected to be much larger than in first quarter. This is because consumers generally took advantage of the price last year by over-specifying against their second half 1927 contracts. As a result, a large proportion of the metal consumed during first quarter was carried over from last year. The increase in current specifications is due to the fact that this stock has been largely liquidated. Spot demand is better and sales are booked at $100, duty paid, tidewater. Some spiegeleisen contracts have been renewed, in some cases through the third quarter. There has been a better demand for spot carloads, bringing $32, furnace, for the 19 to 21 per cent grade. Specifications on contracts continue active.

Spot ferrosilicon and ferrochrome prices are firm, substantially higher than are contract prices. A few users have been buying spot lots rather than contracting, as when contract prices were reduced for 1928 some thought it had become a buyers' market. Such business, however, represents a small proportion of the total. Specifications on contracts are active. Wolframite ore is strong at a minimum of $10.37½, a short ton unit, duty paid.

Pittsburgh, April 3.—Ferroalloy shipments are relatively high. In ferromanganese and ferrosilicon they continue to show a trend toward expansion. The March tonnage is somewhat ahead of February, and considerably ahead of January. The price of ferromanganese is unchanged at $100, base, seaboard. Spiegeleisen shipments also are heavy. A few users have taken out most of their April and May tonnage. The spot market price is unchanged at $32, some shipments on contracts being billed as low as $30 for 19 to 21 per cent.

Chicago, April 3.—A fair amount of less-carload buying of ferromanganese is reported. Specifications for ferromanganese and 50 per cent ferrosilicon are reported slightly ahead of last year. Spiegeleisen is quiet. Shipments of spiegeleisen are being made on contracts for $30, eastern furnace, 19 to 21 per cent material. Carload lots command $32, base.

Dismantles Furnace

Central Iron & Steel Co. is dismantling its Lochiel blast furnace at Harrisburg. This stack was built in 1872, and had an annual capacity of 50,000 tons. It has been idle for some time.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$100.00
Ferromanganese, del. Pittsburgh	$104.79
Spiegeleisen, 19 to 21 per cent domesitc furnace	32.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	93.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium, carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Plates

Heavy Specifications Wind up First Quarter Contracts—Demand for Tank Plates Revives

SPECIFICATIONS on first quarter plate contracts were unusually heavy during the last week of March, users taking advantage of the lower prices that applied. The usual quotation now is 1.85c, base, Pittsburgh. Specifications from carbuilders in the Chicago territory were exceptionally large. Fabricators of oil and gas tanks showed renewed activity at Chicago and Pittsburgh.

PLATE PRICES, PAGE 896

Pittsburgh, April 3.—Specifications on plate contracts were exceptionally heavy during the closing days of March, in winding up old transactions, some of which carried low figures. Customers are generally under contract for their second quarter requirements at 1.85c. The Riter-Conley Co. is low bidder on 31 barges for the Mississippi River commission at Memphis, Tenn., taking 3500 tons, and the American Bridge Co. received the award of six barges for the Union Barge Line. The Howard Shipyards Co. received the award of three barges from the Huntington, W. Va., engineers. Inquiries are more numerous involving gas holders. The last award noted was a 2,000,000-gallon tank at Granite City, Ill., to Stacey Mfg. Co. The Mississippi River commission will require more barges at Memphis than those noted, and the Union Barge Line Co. likewise has a large program ahead.

New York, April 3.—Plate demand is fair and the beginning of second quarter shows no falling off from the first quarter average bookings. About 60 to 70 per cent of the demand is on contracts. The rest of the "pick-up" tonnage is bringing 2.05c, base, Coatesville, equivalent to 2.22½c, delivered, New York. Best demand is from structural fabricators, boiler shops and manufacturers of roadside gasoline tanks. Standard Oil Co. of New Jersey is taking prices on about 300 tons of tank work for McComey, Tex. New York Central railroad on Friday opened bids on its second quarter requirements of plates, shapes and bars.

Cleveland, April 3.—Most plate users specified heavily the last few days of the quarter, and made March tonnage with most makers better than that of February. Lima Locomotive Works is buying for 15 Santa Fe tenders. Plates are 1.85c, Pittsburgh.

Chicago, April 3.—Activity is spirited in the plate market. More than 7000 tons of oil tankage is on inquiry. One producer closed on 3600 tons for the Southwest oil fields during the week. It was an unusually heavy week in specifications from the carbuilding shops, the total being close to 10,000 tons. Universal plate shipments are five to six weeks deferred. General specifications for plates during the week were above the average for this year. Specifications from tankmakers were about 3500 tons. The tonnage contracted for second quarter on the basis of 2.00c, Chicago, is not large but sales are reported slightly more numerous.

CONTRACTS PLACED

1020 tons, six sunken cargo barges, 132 x 35 x 11 feet for Union Barge Line Co., Wabash building, Pittsburgh, to American Bridge Co.

350 tons, three barges for United States Engineers, Huntington, W. Va., to Howard Shipyards & Dry Dock Co.

CONTRACTS PENDING

2500 tons, 31 barges for Mississippi river commission, Memphis, Tenn.; Riter-Conley Co. low bidder.

700 tons, carfloat, Atchison, Topeka & Santa Fe, San Francisco; bids being taken.

Alloys More Stabilized

Detroit, April 3.—The alloy steel market is showing beneficial results from the new differential mode of quoting. Makers do not claim that all of the revised prices have been accepted by consumers, but the differentials are undoubtedly helping to stabilize conditions. A stand is being made on extras, many of which have been put on a new basis.

Iron Ore

Ford Company to Let Contracts This Week—Prices Are Steady

IRON ORE PRICES, PAGE 926

Cleveland, April 3.—Lake Superior iron ore producers have submitted prices on the Ford Motor Co.'s inquiry, and contracts probably will be closed this week. All bids had to be in by Tuesday, April 3, and final action is expected Thursday. The Ford company will buy about 400,000 tons of various grades. From present indications last year's prices will be reaffirmed. The lake vessel season is not expected to open before May 1.

Semifinished

Users Covered Farther Ahead—Specifications Active—$42 Wire Rod Contracts Extended in East

CONSUMERS of sheet bars, billets and slabs have covered their requirements farther ahead than usual, many of them for the entire second quarter. Specifications continue at a high rate, some producers' mills operating at full capacity. The market is steadier at $34, Pittsburgh, for sheet bars, and $33 for billets and slabs, and at $33, Youngstown, for all three grades.

SEMIFINISHED STEEL PRICES, PAGE 896

New York, April 3.—Some irregularities have occurred in the wire rod market. Certain first quarter contracts appear to have been extended through the second quarter and the price is understood to be not higher than $42, base, Pittsburgh. The current market on wire rods is $42 to $44, base, Pittsburgh.

Pittsburgh, April 3.—Small sales of semifinished steel are noted. Specifications on billet and slab contracts are heavy, but in this district demand for sheet bars is quiet. Sheet bars are $34, and billets and slabs $33. Strip steel interests and sheet manufacturers using slabs are specifying larger quantities. One large strip steel producer partially protected for second quarter is understood to be contemplating placing an additional contract within the next week or two. Forging billets are more active; $38 is the contract market figure. Wire rod contracts are on the books for second quarter at $44. Not much will be specified this month because large supplies were carried over when lower price contracts were closed. Skelp is 1.85c to 1.90c, and quiet.

Cleveland, April 3.—Specifications for semifinished steel are holding up, the leading independent producer here continuing to operate at 100 per cent. Regular customers have covered their probable requirements for second quarter, and little is being done in the spot market. Tonnage on contract is being shipped out, it is stated, at $33, Cleveland or Youngstown, for sheet bars, billets and slabs.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Delivered to Consumers.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.75 to 11.00
Boston (dealers)	9.00 to 9.10
Buffalo, No. 1	14.25 to 15.00
Buffalo, No. 2	12.75 to 13.25
Chicago	12.75 to 13.00
Cincinnati (dealers)	11.00 to 11.50
Cleveland, No. 1	13.75 to 14.00
Cleveland, No. 2	13.25 to 13.50
Detroit, No. 1	10.75 to 11.50
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	10.50 to 11.50
Bethlehem delivery	13.50 to 14.00
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	7.00
Pittsburgh, No. 1	14.50 to 15.00
St. Louis	11.25 to 11.75
Valleys, No. 1	14.50 to 15.00

COMPRESSED SHEETS

Buffalo	12.75 to 13.25
Chicago	11.00 to 11.50
Cleveland	12.50 to 12.75
Detroit	10.50 to 10.75
Pittsburgh	14.00 to 15.00
Valleys	14.00 to 14.50

BUNDLED SHEETS

Buffalo	10.00 to 10.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pennsylvania	10.50
Pittsburgh	13.50 to 14.00
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.75 to 9.25
Detroit	7.00 to 7.50
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	11.50 to 12.00
Buffalo	15.75 to 16.25
Chicago	15.25 to 15.75
Cincinnati (dealers)	16.00 to 16.50
Detroit	11.00 to 11.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	9.50 to 10.50
Buffalo	12.75 to 13.25
Chicago (net)	11.50 to 12.00
Cincinnati (dealers) net	8.50 to 9.00
Cleveland	12.00 to 12.50
Detroit (net tons)	10.50 to 11.00
Eastern Pennsylvania	11.50 to 12.00
New York (dealers) (mill)	7.50 to 8.00
Pittsburgh	12.50 to 12.75
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.75 to 17.25
Cincinnati (dealers)	13.00 to 13.50
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	18.00 to 18.50
Cleveland, billet, bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	12.75 to 13.00
Pittsburgh	10.50
St. Louis	11.25 to 11.75

KNUCKLES, COUPLERS, SPRINGS

Buffalo	15.50 to 16.00
Chicago	14.00 to 14.50
Eastern Pennsylvania	16.50 to 17.00
Pittsburgh	16.00 to 16.50
St. Louis	12.50 to 13.00

FROGS, SWITCHES, GUARDS

Chicago	13.50 to 14.00
St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Buffalo	14.00 to 14.50
Chicago	14.25 to 14.75
St. Louis	11.50 to 12.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	10.00 to 10.50
Buffalo, No. 1	12.25 to 12.75
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	12.30 to 12.90
Chicago, No. 2	12.75 to 13.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Eastern Pennsylvania	15.00 to 15.50
New York, No. 1 (dealers)	11.00 to 11.50
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	14.50 to 15.00
St. Louis, No. 1	9.75 to 10.25
St. Louis, No. 2	11.25 to 11.75

WROUGHT PIPE

Boston (dealers)	7.75 to 8.25
Eastern Pennsylvania	13.00
Buffalo	12.00 to 12.50
New York (dealers)	8.00 to 8.50

YARD WROUGHT

Boston	8.00 to 8.50
Eastern Pennsylvania	14.50 to 15.00

BUSHELING

Buffalo	12.75 to 13.25
Chicago, No. 1	10.50 to 11.00
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	6.50 to 7.00
Cleveland, No. 2	10.00 to 10.25
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	9.75 to 10.25
Detroit, mixed	7.25 to 7.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	5.00 to 5.50
Buffalo	8.50 to 9.00
Chicago	7.00 to 7.50
Cincinnati (dealers)	7.50 to 8.00
Cleveland	7.25 to 7.50
Detroit	6.00 to 6.50
Eastern Pennsylvania	10.00 to 10.50
New York (dealers)	6.25 to 7.35
Pittsburgh	10.00 to 10.50
St. Louis	7.00 to 7.50

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	9.50 to 10.00
Boston (dealers)	6.00 to 6.50
Buffalo	9.75 to 10.25
Chicago	9.50 to 9.75
Cincinnati (dealers)	8.25 to 8.75
Cleveland	10.00 to 10.25
Detroit	6.75 to 7.00
Eastern Pennsylvania	10.50 to 11.00
Eastern Pennsylvania (chem.)	14.50 to 15.00
New York (dealers)	6.75 to 7.35
Pittsburgh	10.50
St. Louis	9.00 to 9.50
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	5.75 to 6.25
Buffalo	9.50 to 10.00
Cincinnati (dealers)	8.25 to 8.75
Cleveland	10.00 to 10.25
Detroit	6.75 to 7.00
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	6.75 to 7.35
Pittsburgh	10.50

PIPES AND FLUES

Chicago (net)	8.50 to 9.00
Cincinnati (dealers)	7.75 to 8.25
St. Louis	9.50 to 10.00

RAILROAD GRATE BARS

Buffalo	11.50 to 12.00
Chicago (net)	11.50 to 12.00
Cleveland	12.00 to 12.50
Eastern Pennsylvania	11.50 to 12.00
New York (dealers)	8.00 to 8.50
St. Louis	11.50 to 12.00

FORGE FLASHINGS

Boston (dealers)	6.00 to 6.50
Buffalo	12.00 to 12.50
Chicago	9.50 to 10.00
Cleveland (over 10 in.)	12.25 to 12.50
Detroit	9.50 to 10.00
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	15.50 to 16.00
Eastern Pennsylvania	11.00

ARCH BARS AND TRANSOMS

Chicago (net)	18.50 to 19.00
St. Louis	19.50 to 20.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	6.75 to 7.00
Buffalo	12.50 to 13.00
Chicago	10.25 to 10.75
Cleveland	12.00 to 12.25
Eastern Pennsylvania	12.00 to 12.50
Pittsburgh	13.00 to 13.50
St. Louis	9.50 to 10.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	16.75 to 17.25
Chicago	17.65 to 18.20
Cleveland	16.00 to 16.50
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	18.00 to 18.50
St. Louis	18.50 to 19.00

SHAFTING

Boston (shipping point)	13.00 to 13.50
Chicago	17.35 to 17.90
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 15.00
Boston (consumers)	14.00 to 14.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	13.50 to 14.00
Chicago, rolled steel	14.50 to 15.00
Cincinnati	12.25 to 12.75
Eastern Pennsylvania	16.00 to 16.50
New York iron (dealers)	11.50 to 12.00
Pittsburgh, iron	14.25 to 15.00
Pittsburgh, steel	16.00 to 16.50
St. Louis, iron	13.00 to 13.50
St. Louis, steel	14.25 to 14.75

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 14.50
Boston	14.00 to 14.50
Buffalo	14.50 to 15.00
Chicago, No. 1 machinery	15.65 to 16.25
Chicago, No. 1 railroad	14.30 to 14.85
Chicago, No. 1 agricultural	14.00 to 14.55
Cincinnati No. 1 machinery cupola (net tons dealers)	14.50 to 15.00
Cleveland, cupola	16.50 to 17.00
Detroit (net tons)	12.25 to 12.75
Eastern Pennsylvania (cupola)	16.50 to 17.00
New York, cupola (dealers)	13.00 to 13.50
Pittsburgh, cupola	14.50 to 15.00
San Francisco, delivered	20.00 to 21.00
Seattle	15.25 to 15.50
St. Louis, railroad	13.50 to 14.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, machinery	14.00 to 14.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo (breakable)	11.50 to 12.00
Cleveland (breakable)	12.25 to 12.50
Detroit (automobile) (net tons)	20.00 to 21.00
Detroit, machinery cast No. 1 (net)	12.25 to 12.75
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.50 to 12.00
Pittsburgh	12.50 to 13.00

MALLEABLE

Boston, railroad	13.00 to 13.50
Buffalo	15.00 to 15.50
Chicago, agricultural	11.75 to 12.25
Chicago, railroad	12.75 to 13.00
Cincinnati, railroad (dealers)	12.50 to 13.00
Cincinnati, agricultural (dealers)	12.25 to 12.75
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, railroad	14.25 to 14.75
St. Louis, agricultural	11.50 to 12.00
St. Louis, railroad	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.00 to 13.50
Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	14.00 to 14.50
Eastern Pennsylvania	15.25 to 15.50
New York	11.00 to 11.50
Pittsburgh district	16.50 to 17.00
St. Louis	13.00 to 13.50

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	12.25 to 12.75

LOW PHOSPHORUS PUNCHINGS

Chicago	14.00 to 14.50
Pittsburgh	16.00 to 16.50

Scrap

Large Consumption Fails to Strengthen Prices—Buying Mostly Small Lots—Prices Waver

IN SPITE of heavy melt of scrap dealers find it difficult to find buyers. Some melters are willing to contract at bargain prices but dealers avoid commitments for fear of a rise. While general supply is large difficulty is met occasionally in obtaining sufficient high grade steel to meet specifications of careful mills. Steel corporation subsidiaries have been buying scrap in some districts.

Chicago, April 3.—In the face of steelworks consumption of scrap at a top mark for this territory, iron and steel scrap prices are showing continued softness. Weakness is due largely to shipments of scrap from outside points. Tonnage from the Detroit district recently is said to have been much larger than at first reported. This consisted of forge flashings, hydraulic compressed sheets and borings. Cast borings also are being shipped from other Michigan points, Milwaukee territory and other centers. The top price for borings now is $9.75, the lowest in many months. Entry of Gary mills into the market has failed to prove a stimulus to prices as it usually is. Inquiry continues good and shipments heavy. While plenty of heavy melting steel is available, difficulty is found in obtaining grades to meet specifications. The melting steel range continues at $12.75 to $13, unchanged from a week ago.

Boston, April 3.—Scrap brokers report business somewhat better than a month ago. Producers are not willing to sell at prevailing prices. Consequently the floating supply is somewhat limited in some lines. Prices have stopped the sagging tendency that has existed for some time.

New York, April 3.—Continued dullness has resulted in further weakness in iron and steel scrap. Dealers have marked down buying prices on rails for rolling and stove plate for mill consumption about 50 cents a ton, now quoting $11 to $11.50 and $7.50 to $8, New York, respectively.

Philadelphia, April 3.—Sales of iron and steel scrap are restricted to small, scattered tonnages. Prices are unchanged, except borings and grate bars, which are a trifle lower.

Buffalo, April 3.—Dealers report small lots of heavy melting steel have been sold close to $15, stiffening the Buffalo market to some extent, although other dealers report difficulty in getting this top for No. 1 steel. Consumption is high, and dealers believe some large melters must buy tonnage soon.

Pittsburgh, April 3.—Scrap again is inactive, dealers finding buyers slow except at bargain figures. They do not care to take on such orders for fear they will not be able to cover. Until railroad lists are out of the way, open market activity will be lacking. Heavy melting steel is not quotable much above $14.50 to $15, although recently some premium scrap brought 75.00c or $1 per ton higher. Heavy breakable cast is quotable at $12.50 to $13, and compressed sheets at $14 to $15.

Cleveland, April 3.—Around $14.25 a ton is reported to have been paid by the United States Steel Corp. subsidiary here on its recent order for 7000 tons of No. 1 heavy melting steel. The 3000 tons of compressed sheets, placed at the same time, are understood to have commanded about $13.50 a ton. The order is for April delivery. Shipments generally show little improvement, regulations continuing in force. Prices lack a real test, and the current list is largely nominal and unchanged.

Detroit, April 3.—Although scrap consumption in the Cleveland, Youngstown, Pittsburgh and Chicago districts has increased it has not kept pace with expanding production of scrap at local automotive plants and as a result prices continue downward. One notable exception is compressed sheets, now up to a spread of $10.50 to $10.75, because a West Virginia steelmaker came into the market recently and paid $11 for 5000 tons for spot shipment. Mixed borings and short turnings are down to a range of $6.75 to $7. Much blast furnace scrap is moving to the Chicago district. With automotive schedules in April promising to equal the March rate the plethora of scrap is expected to continue.

Cincinnati, April 3.—Iron and steel scrap is sluggish with few inquiries and movement slow on previous orders. Prices are unchanged.

St. Louis, April 3.—Demand for iron and steel scrap continues low, sales being smaller than at any time since the present depression set in. Weakness prevails in all grades, but due to lack of sales, few changes are made in quotations, the market being largely nominal. Heavy melting and shoveling steel were reduced fractionally to $11.25 to $11.75, a new low on the movement.

Birmingham, Ala., April 3.—Better conditions are noted in iron and steel scrap, with considerable tonnage moving, especially heavy malleable steel, stove plate and No. 1 cast.

In Detroit 85,000,000 cubic feet of gas is used monthly for steel treating.

Sheets

Market Is Active, and Mill Operations at High Average—Users Specify Heavily

DEMAND for sheets continues active, and mill operations proceed at a fairly high average. Motorcar builders pursue a conservative buying policy, but the aggregate generally is satisfactory and sufficient to establish the market on full finished at 4.15c. Large buyers of other grades are obtaining some concessions. Eastern users specify heavily.

SHEET PRICES, PAGE 896

Pittsburgh, April 3.—Sheet producers continue to draw fairly liberal specifications from diversified lines of industry and jobbers, sustaining operations at 85 to 90 per cent. The American Sheet & Tin Plate Co. continues at 88 per cent. Specifications are heavy from automobile companies and parts makers; steady from agricultural implement makers and the electrical industry; fair from the building trades, with prospects of increased tonnage before another month; and intermittent from car building and other lines. As far as automotive tonnage is concerned, most if not all tonnage required until July 1 is now under contract. Orders continue to be taken on black sheets here at the full price, 2.90c. Some concessions occasionally develop on galvanized, and 3.65c to 3.75c is quotable. On blue annealed 2.10c is the ruling figure, and while some mills have had difficulty in obtaining 10.00c extra on material 40 inches and wider, others report no difficulty. On full finished sheets, 4.15c is maintained.

New York, April 3.—The extent to which mills generally have accepted specifications against first quarter sheet contracts has become fully apparent. Practically anything specified prior to the closing of business last Saturday was accepted against expiring contracts. As a result consumers now generally are covered through May and in some cases into June. Consumers of full finished sheets have specified enough tonnage to see them to the end of second quarter. Thus, there is not likely to be any real test until near the end of May. The market is nominal at 2.10c, base, Pittsburgh, for blue annealed, 2.90c for black and 3.75c

for galvanized, although, as previously indicated, the price on black has been shaded recently. There also has been some shading in galvanized. Sellers of blue annealed report they now are obtaining generally the extra $2 per ton for widths over 40 inches. Bids were opened by the New York Central railroad last Friday on its second quarter requirements, and on the sheets all mills appear to have based their quotations on 2.90c, base, for black; 2.10c, base, for blue annealed and 3.75c, base, for galvanized excepting the Sheet Metal Mfg. Co., which quoted 2.85c, base, Youngstown, on black; 3.50c, base, Youngstown, galvanized and 2.09c, base, Youngstown, on blue annealed.

Detroit, April 3.—Makers of full finished sheets have not received extensive business from automotive interests at the new 4.15c, Pittsburgh, price but they have taken small lots from large buyers at this price. The Ford Motor Co. has been shopping for a lower price, and is reported to have extensions sufficient to tide it through April. Some small buyers are paying 2.90c for black sheets but large buyers have covered at 2.75c. Most blue annealed users have deferred action, but 2.00c seems nearer the market than 2.10c. April shipments of sheets into the district are expected to equal those of March.

Cleveland, April 3.—Blue annealed sheets continue in good demand with prices firm. Several sales of more than 100 tons each were reported at 2.10c, Pittsburgh. Black sheets are steady at 2.90c, Pittsburgh, in the Cleveland district, although a tendency to base on valley mills still is noted. Although galvanized is reported 3.65c to 3.75c, one mill took a fair tonnage recently at the top price. Autobody sheets are firm at 4.15c. Little demand is coming from the barrel makers.

Chicago, April 3.—Second quarter contracting for sheets is slower than expected, due to the tendency of buyers to order only as needed. Mills have heavier backlogs for blue annealed than other grades. Blue annealed schedules run three to four weeks, while the average bookings are two to three weeks. Specifications keep operations at about 80 per cent. Buyers in the South and Southwest are inclined to bargain for prices and considerable resistance appears in some sections. Mills report that the second quarter prices are steady. Chicago delivered prices are 3.05c for No. 24 black; 3.90c for No. 24 galvanized; and 2.25c to 2.35c for No. 10 blue annealed.

St. Louis, April 3.—March sheet specifications exceeded expectations, and a fair volume of new purchasing is noted. Prices are steady.

Youngstown, O., April 3.—Steadily shipping on urgent instructions, sheetmakers are facing the new quarter with much more cheerfulness and certainty than they did the first quarter. The new prices begin to take hold upon the growing volume of mill orders. While independent units began operating Monday at 85 per cent, against 91 per cent a week ago, additional units will be under power this week. Sales of common black are being made at 2.90c, base, Pittsburgh, and small lots of galvanized at 3.75c. Makers of autobody sheets now have sufficient specifications in sight to insure continued full operations to June 1 and later, and the specifications cover material sold at 4.15c. Blue annealed sheets show some signs of further strengthening since hot-rolled strip specifications from auto parts makers now coming to hand carry an advance of $2 to $4 over first quarter.

Philadelphia, April 3.—The tin mill black sheets show an easier tendency, because specifications against first quarter contracts will last some consumers through the second quarter. The current market appears 2.90c to 3.00, base, Pittsburgh.

Sykes Sheet Metal Co., Chicago, is the new name of the Howley Sheet Metal Co.

Tin Plate

Specifications Heavy—Operations At 90 to 100 Per Cent

TIN PLATE PRICES, PAGE 896

Pittsburgh, April 3.—Canmakers are making more cans this year than last for the vegetable pack, and they have specified much if not all of the required tin plate. Customers occasionally add to their first half or second quarter purchases. One buyer recently contracted for June tonnage. Specifications against second quarter contracts continue heavy and mill operations average 90 to 100 per cent. The American Sheet & Tin Plate Co. is at 92 per cent. Nothing has been done yet with reference to third quarter or last half prices or tonnage. The price is $5.25 per base box.

Pipe

Line Pipe Activity Increasing —Cast Demand Includes Heavy Lots at Firmer Prices

PLACING of several line pipe tonnages for the Southwest has stirred increased activity in the market. Elimination of one 5 per cent preferential discount to jobbers has strengthened the price situation. Cast buying is more active, including 4700 tons at Evansville, Ind., and 1500 tons at Akron, O. Cast prices are stronger, with a $1 advance on the Chicago minimum.

PIPE PRICES, PAGE 896 AND 930

Pittsburgh, April 3.—Effective April 2, Youngstown Sheet & Tube Co., National Tube Co., Jones & Laughlin Steel Corp. and other leading pipe producers withdrew the preferential extra 5 per cent discount granted jobbers since the fourth quarter of last year. This makes the present discount to jobbers, base 1 and 5 per cent off, instead of base 1, 5 and 5 off. This stiffening in price applies not only to standard full weight merchant pipe but to line pipe, water well casing, etc., in connection with which spots of weakness have developed intermittently during the past several months. Jobbers in general have been ordering at a better rate in March than in January or February, and already signs are appearing that April will exceed March both in specifications and in shipments.

Line pipe is becoming more active, and the spring and summer will see additional lines ordered on which preliminary estimates are being made. The 200-mile 8-inch line ordered from the leading interest, as noted last week, involved 180 miles of 8-inch, 25-pound seamless pipe, and 20 miles of 8-inch, 28-pound, being placed by the Pasotex Pipe Line Co., El Paso, Tex., a subsidiary of the Standard Oil Co. of California. This line will run from Yates pool in Pecos county to the El Paso, Tex., refinery. H. H. Hall is the engineer in charge. The Latex Construction Co., Eastland, Tex., recently awarded a contract for approximately 13,000 tons of pipe for a gas line from Chillicothe, Tex., to Stamford, Tex., by C. O. Moore and associates, will probably place the pipe within the next week or two.

Standard full weight merchant pipe jobbers are ordering more liberally, some already having commenced to tabulate their stocks. All contemplate a good movement throughout the spring and summer because of widespread building programs.

New York, April 3.—Little fresh municipal inquiry has come out in the past few days, but private and miscellaneous demand for cast pipe is slightly better, and the upward tendency in prices appears more pronounced. The market now may be quoted at the slightly higher range of $37.25 to $38.25, New York, for 6-inch pipe and over.

Chicago, April 3.—Cast iron water pipe quotations in this territory are noticeably stronger. Bids for the 3200 tons of 24 to 48-inch pipe for Chicago disclosed a low bid of $32.55, Birmingham, or $40.75 delivered. This was from the United States Cast Iron Pipe & Foundry Co. The next low bid was on the basis of $32.80, Birmingham. The award has not yet been made. Contract sales are in a range of $30 to $32, base, Birmingham, for 6 to 24-inch pipe. This represents

an advance of $1 from the recent minimum quotation. Contract business of from one to three carload lots is active. United States Cast Iron Pipe & Foundry Co. also closed for 4700 tons of 8 to 24-inch pipe for Evansville, Ind. Important municipal inquiry continues scarce. Most producers are booked from 15 to 30 days.

Birmingham, Ala., April 3.—Production is steady and deliveries of cast iron pressure pipe are somewhat improved. Base prices are being well maintained at $30 to $31 on 6-inch and over sizes. Tuscaloosa took 2700 tons of 24-inch pipe from Central Foundry Co. for waterworks development.

Cleveland, April 3.—Announcement that one of the 5 per cent preferential discounts, allowed jobbers on carloads since November, has been eliminated, came as a distinct surprise to the pipe trade of this district. The change, effective April 2, makes the current discount on black pipe 1, 5 and 2½ instead of 1, 5, 5 and 2½ off. Jobbing demand is only fair, sales for building purposes lagging behind seasonal normal.

CONTRACTS PLACED

4700 tons, 8 to 24-inch pipe for Evansville, Ind., to United States Cast Iron Pipe & Foundry Co., as low bidder at $29.80, Birmingham.

2700 tons, 24-inch pipe for waterworks system, Tuscaloosa, Ala., to Central Foundry Co.

1500 tons, 4 to 16-inch pipe for Akron, O., to American Cast Iron Pipe Co.

431 tons, 10 to 24-inch class 150, Santa Ana, Calif., to United States Cast Iron Pipe & Foundry Co.

406 tons, 6 and 8-inch class 250, San Bernardino, Calif., allocated as follows: 271 tons of 8-inch to American Cast Iron Pipe Co. and 135 tons of 6-inch to Pacific States Cast Iron Pipe Co.

123 tons, 18-inch class C, San Diego, Calif., to United States Cast Iron Pipe & Foundry Co.

100 tons, 6-inch class B and 10-inch class 150, Red Bluff, Calif., to Pacific States Cast Iron Pipe Co. for 6-inch and Crane Co. for 10-inch.

100 tons, 4 to 8-inch pipe for Troy, N. Y., to B. Nicoll & Co.

CONTRACTS PENDING

3200 tons, 24 to 48-inch pipe for Chicago; United States Cast Iron Pipe & Foundry Co. low bidder at $32.55, Birmingham, or $40.75 delivered.

517 tons, 20-inch and 410 tons of 30-inch class C straight pipe for Milwaukee, United States Cast Iron Pipe & Foundry Co. low bidder at $38.25 per ton. J. B. Clow & Sons only other bidder at $39.50.

250 tons, 4 to 8-inch cast pipe for Morristown, N. J.; bids in.

210 tons, 6 and 8-inch class C, improvement to Willow street, San Diego, Calif.; bids in April 16.

181 tons, 6 and 8-inch class B, improvement to Foothill boulevard, Azusa, Calif.; bids opened.

129 tons, 8 to 24-inch class B sewer project, San Bernardino, Calif.; bids in April 28.

100 tons, pipe for Somerset, Mass.; bids in.

Tin Plate Mill May Go

Pittsburgh, April 3.—American Sheet & Tin Plate Co. has closed its local tin plate mill and, because it is a high cost mill, may dismantle it.

Bars

Heavy Sales and Specifications Defer Deliveries—General Activity Among Users

BUYING of soft steel bars is more active than in any other finished steel product and all classes of users are taking large deliveries. Prices are steady. Deliveries are deferred and on some sizes five weeks is needed. While prices are resisted by some makers mills are holding firmly. Production is held at a high point to meet demand. Bar iron is steady.

BAR PRICES, PAGE 896

Chicago, April 3.—Sales and specifications in bar mill products reached a high mark during the week. One producer reports sales the best of any week this year. While demand apparently is well diversified, automotive lines, farm implements, and cold bar finishers lead in specifications. More bars are being contracted for second quarter than plates or structurals. Some resistance to prices has developed but producers are closing bar contracts at 2.00c, Chicago, while users are taking shipments on 1.90c and 1.95c contracts which extend into the second quarter. Users are required to take this material at mills, convenience and deliveries are not being extended on the lower priced contracts.

Heavy stocks that were carried over by some distributors of rail steel fence posts has caused a delay in shipments from mills for the spring trade. It is expected the rail steel fence post business will be more active within two weeks. Manufacturing consumers of rail steel bars are ordering steadily. Operations of the Chicago Heights mills continue in full. The second quarter price is steady at 1.85c, Chicagi Heights. Bar iron is steady at 2.00c, Chicago.

Pittsburgh, April 3.—Notwithstanding the average of merchant steel bar operation is over 80 per cent, deliveries are becoming more deferred. On certain sizes shipping dates are three to five weeks ahead because of the recent heavy specification rate. Specifications during the last few days of March were particularly heavy, closing out most contracts carrying lower prices than the 1.85c on second quarter contracts. Mills thus have accumulated fairly large tonnages and this has demonstrated how quickly the delivery situation responds to any extra spurt. The present quarter starts out with 1.85c the general market level. The 1.90c price applies in the spot market or to non-contracting customers. Some makers are trying to obtain the $2 differential over the 1.85c contract price for small quantities.

Refined iron bar demand is light. Small orders rule. Prices, however, are firm at 2.75c and up.

Cleveland, April 3.—A rush of specifications the last ten days of March brought the March tonnage of some makers past the February mark. Automotive users continue to lead in this market. The mills have little holdover business as a result of their stand against extensions. Second quarter prospects are appraised as brighter than thirty days ago. Makers ask 1.85c, Pittsburgh, or 1.90c, Cleveland mill.

Detroit, April 3.—New business in soft steel bars is light, a natural condition in view of second quarter coverage, but March shipments of most makers into this district topped those of February and April specifications promise at least to equal March. Forging bars particularly are in demand, one automotive interest using 1000 tons of forging bars and billets a day. Second quarter contracts have generally carried a 1.85c, Pittsburgh, price. By the middle of April most lower-priced business will have been shipped, though some 1.80c contracts have been extended.

Philadelphia, April 3—Over-specifying of steel bars on first quarter contracts will permit some users to go well into the second quarter, but most users are covered by contract.

Morgan Makes Profit

Shipments of the Morgan Engineering Co., Alliance, O., were slightly lower in 1927 than in 1926, but owing to the discontinuance of some unprofitable lines the loss of 1926 was converted into a small profit in 1927, after full depreciation and interest charges, the statement of the general creditors' committee states. Assets of the company as of last Dec. 31 totaled $4,916,645, of which $3,490,527 is represented by plant and properties.

To Simplify Abrasives

Washington, April 3.—A simplified practice recommendation for coated abrasive products will be considered at a general conference of consumers, technical experts, distributors and manufacturers to be held here April 11. The annual output of the industry exceeds $16,000,000. The Abrasive Paper and Cloth Manufacturers' exchange has submitted a tentative proposal for eliminating superfluous sizes and varieties.

The federal trade commission survey of open price associations is reported "in an advanced stage of preparation."

Structural Shapes

Heavy Projects Numerous Although Mostly for Prospective Work—New York Subways Under Negotiation to Take 25,000 Tons

INCLUDING a number of large-tonnage projects, the structural market appears to have recovered from a recent temporary lull in some districts. Pending work is featured by subway jobs in New York, two new sections to require 12,700 tons and a section in Queens to be re-advertised for 12,000 to 13,000 tons. Included in other large prospective work is a 63-story office building in New York to involve about 12,000 tons and a Mississippi river bridge at St. Louis requiring 6000 tons. Subway work also featured awards with a 7800-ton section being placed.

Plain material prices generally are steady, with fabricators covered on second quarter needs. Fabricated and erected prices tend to weakness again in the New York district.

STRUCTURAL SHAPE PRICES, PAGE 896

New York, April 3.—Structural inquiry has shown a moderately good improvement, with bridge demand a feature. More than 6400 tons of miscellaneous bridge inquiry has come out in the past few days, and an inquiry for heavy tonnage for the Pennsylvania railroad bridge over Newark bay appears imminent. Inquiry is out for 12,000 tons for a 63-story office and apartment building at Lexington avenue and Forty-seventh street.

Considerable subway work also is active, involving close to 25,000 tons. Of this amount 12,000 to 13,000 tons for a project in the Queens will be re-advertised. Meanwhile, prices on both fabricated material and shapes are unchanged; firmness of most shape mills in refusing to extend contracts at first quarter prices has resulted in the specifications of heavy tonnage during the closing week of March. This brought sales for some leading mills to the largest volume in several months. The market is tending toward 2.19c, New York, minimum on the general run of plain material orders.

Boston, April 3.—Little improvement in the structural market was noted in the local district the past week. A number of fairly large tonnages were awarded but inquiries were few.

Pittsburgh, April 3.—Numerous miscellaneous jobs are being let in this vicinity, several fabricators each reporting 100 to 600 tons. During April a number of jobs are scheduled to develop. A fairly large backlog was accumulated in closing out old contracts. The present mill level is 1.85c, with 1.90c appearing in the spot market.

Philadelphia, April 3.—Although numerous structural shape buyers now are under contract at 1.85c, Pittsburgh, or 2.00c, Bethlehem, depending upon the shipping destination, considerably lower prices continue a factor on preferential business. A number of consumers in this territory have had first quarter prices extended to cover a portion of the second quarter. Current shape bookings are somewhat better and structural projects are more numerous.

Cleveland, April 3.—Fabricators of structural steel in the past week specified out all plain material on first quarter contracts, assuring mills heavy production during April. Although some smaller fabricators are operating up to 90 per cent of normal capacity, the flow of business in other shops is sufficient only for 20 per cent operations. Plain material prices in this district are reported firm at 1.85c, Pittsburgh, for second quarter, although some first quarter specifications were carried over until today. Reports of low prices on fabricated and erected material involve quotations of around $70 erected.

Chicago, April 3.—Specifications for plain structural material during the week were above the average for this year. Sales at 2.00c, Chicago, are not up to the rate of specifications but contracting for second quarter the past week has been encouraging. Specifications from carbuilders led during the week. Specifications for bridge work material, from tank builders, and from structural fabricating shops likewise were heavy. Mills are turning into second quarter with shipments on 1.90c and 1.95c contracts still unfulfilled. Users will be required to take this material when the mills can ship it as it is understood no delivery contracts are to be extended.

Awards Compared

	Tons
Awards this week	27,658
Awards last week	25,711
Awards two weeks ago	19,350
Awards this week in 1927	14,295
Average weekly awards, March	30,805
Average weekly awards, 1928	43,959
Total awards to date, 1927	501,106
Total awards to date, 1928	571,460

CONTRACTS PLACED

7800 tons, subway section No. 106, New York, through Flynn Corp., general contractor, to McClintic-Marshall Co.

4300 tons, Capwell store, Oakland, Calif., to Judson-Pacific Co.

2974 tons, involved in the following awards:
School, Roslyn, Long Island, N. Y., to Lehigh Structural Steel Co.
Mansion theater, Lexington avenue and Fifty-eighth street, New York, to Taylor-Fichter Steel Construction Co.
Roof, medical center, 168th street and Broadway, New York, to Taylor-Fichter Steel Construction Co.
Alterations, 881 Fifth avenue, New York, to George A. Just Co.
Service station, Sixth avenue and Seventh street, New York, to George A. Just Co.
Odd Fellows hall, 105-111 East 106th street, New York, to George A. Just Co.

950 tons, administration for department of agriculture, Washington, to McClintic-Marshall Co.

634 tons, Ak-Sar-Ben pavilion, Omaha, Nebr., to Paxton & Vierling Iron Works.

600 tons, bridgework for Atchison, Topeka & Santa Fe, and Missouri-Kansas-Texas railroads, to Kansas City Structural Steel Co.

600 tons, bridge, Coraopolis, Pa., through Farris Engineering Co., general contractor, to American Bridge Co.

600 tons, office building, Broadway and Maiden lane, Albany, N. Y., to Levering & Garrigues Co.

550 tons, new hotel at Springfield, Mass., to Palmer Steel Co.

525 tons, four subway structures, Sharonville, O., to McClintic-Marshall Co.

500 tons, market building, Baltimore, to McClintic-Marshall Co.

500 tons, Y. W. C. A., Williamsport, Pa., to American Bridge Co.

500 tons, Terminal Title & Trust building, Philadelphia, to Bethlehem Fabricators Inc.

450 tons, girder spans for Market street viaduct, Shreveport, La., to Virginia Bridge & Iron Co.

450 tons, Knights of Pythias building, St. Louis, to Mississippi Valley Structural Steel Co.

440 tons, bank and office building, Ashley road and Market streets, Philadelphia, to Bethlehem Fabricators Inc.

400 tons, including 100 tons junior beams for Shenango Motor building, New Castle, Pa., to Guibert Steel Co.

400 tons, apartment, Sunset boulevard, Los Angeles, to Llewellyn Iron Works.

400 tons, addition to Medical building, Post street, San Francisco, to Judson-Pacific Co.

400 tons, apartment at East Forty-third street, New York, to Harris Structural Steel Co.

365 tons, Metropolitan police gymnasium, St. Louis, to St. Louis Structural Steel Co.

300 tons, Vardmont theater and office, Fifty-third street and Seventh avenue, New York, to George A. Just Co.

280 tons, Smith Ferry bridge, Roseburg, Oreg., to Poole & McGonigle.

280 tons, building for Deere & Co., Moline, Ill., to Rochester Bridge Co.

280 tons, power station for Public Service Production Co., Roseland, N. J., to Archibold Brady Co.

260 tons, highway bridges in Indiana, to Rochester Bridge Co.

233 tons, bridge over Clark Fork river, Sanders county, Montana, to unnamed interest.

220 tons, Palace theater, Marion, O., to Rochester Bridge Co.

170 tons, Phillips' residence, Butler Pa., to the Jones & Laughlin Steel Corp.

160 tons, alterations to a residence at 15 East Eighty-fourth street, New York, to Fassler Iron Works.

160 tons, Women's League building, University of Michigan, Ann Arbor, Mich., to Rochester Bridge Co.

150 tons, two school buildings in Indiana, to Rochester Bridge Co.

140 tons, joists, apartment, Stockton and

California streets, San Francisco, to Judson-Pacific Co.
130 tons, new bridge at West Bolyston, Mass., to Boston Bridge Works Inc.
125 tons, structural steel for Columbia Steel Corp., Pittsburg, Calif., to Pacific Coast Engineering Co.
120 tons, store and loft building for N. A. K. Bugbee Co., Trenton, N. J., to American Bridge Co.
107 tons, monastery building, Huntington, Ind., to Rochester Bridge Co.
105 tons, sheet metal plant, Nashville, Tenn., to McClintic-Marshall Co.
100 tons, Roman Catholic church, McKees Rocks, Pa., to Pittsburgh-Des Moines Steel Co.
100 tons, grandstand at Oxford, O., to the Pittsburgh-Des Moines Steel Co.
Unstated tonnage, two schools, Mentor, O., reported awarded Niles Forge & Mfg. Co.

CONTRACTS PENDING

12,000 tons, or over, 63-story Penlex building, Lexington avenue and Forty-second street, New York, new specifications out. This structure will be a combination office and apartment building.
12,000 to 13,000 tons, subway section 1, route 108, Queens, New York, to be readvertised, at the former opening, as noted, Triest Contracting Corp. was low on one proposal and the Corson Contracting Co. low on the alternate.
7700 tons, subway section 4, route 109, New York; Corson Contracting Co. low on general contract.
6000 tons, municipal bridge over Mississippi river at St. Louis.
6000 to 10,000 tons, airship hangar for Goodyear Tire & Rubber Co., Akron, O.; negotiations now under discussion in congress.
5000 tons, subway section 5-A, route 109, New York, general contract awarded to Rodgers & Haggerty.
4000 tons, first section, Pennsylvania and Lehigh Valley railroads vertical lift bridge over Newark bay, between Waverly and Bayonne, N. J.; bids asked on entire structure to take over 15,000 tons. Bridge to be completed before Jan. 1, 1930.
3200 tons, Girod and Poydras street wharves New Orleans; bids being received by board of commissioners.
2200 tons, Manhattan Towers church and apartment building, Seventy-seventh street and Broadway, New York; bids asked.
1900 tons, miscellaneous bridgework for Baltimore & Ohio railroad.
1475 tons, Loew theater, Journal Square, Jersey City, N. J.
1275 tons, baggage subway and bridge for New York Central railroad, South Bend, Ind.
1000 tons, bank building, Flint, Mich.
1000 tons, municipal viaduct, Atlanta, Ga.
1000 tons, Tilden theater, Brooklyn, N. Y.; bids asked.
947 tons, bridge over San Joaquin river near Herndon, Calif.; bids in April 18.
800 tons, Pennsylvania railroad freight station, Trenton, N. J.
750 tons, forum, Buffalo; bids to be taken soon. H. G. Plumer associates, Buffalo, architects.
700 tons, miscellaneous bridgework for Southern railway. 500 tons is for a viaduct at Clouds, Tenn., and 200 tons for various bridges for its western lines.
700 tons, First National bank building, Trenton, N. J.
650 tons, Crawford avenue bridge, Chicago.
606 tons, bridge over Sacramento river at Freeport, Calif.; bids opened.
600 tons, highway bridges in New York state; bids in April 3 at Albany, N. Y.
600 tons, marine barracks, Quantico, Va.
600 tons, bridge over Smith river, Sacramento, Calif.; bids in April 4.
520 tons, bridge, Springfield, Oreg.; general contract to Lindstrom & Feigenson.
500 tons, Crescent temple, Trenton, N. J.
500 tons, Aiken avenue apartment house, Pittsburgh; being refigured.
480 tons, Mark Twain hotel, Elmira, N. Y.
400 tons, Shroeder hotel garage, Milwaukee.
350 tons, bridge for Bangor & Aroostook railroad, at Monticello, Me.
350 tons, hangars for Oakland, Calif.; bids in.
300 tons, switch house for Public Service Production Co., Metuchen, N. J.; bids asked.
300 tons, bridge, Glendale, Pa.
275 tons, five bridges for Maine Central railroad.
250 tons, Roman Catholic church and school, Camden, N. J.
240 tons, school addition, Providence, R. I.; general contract to Balchin Construction Co.
220 tons, bridge over McKenzie river at Coburg, Oreg.; bids opened.
200 tons, University of Delaware building, Newark, Del.
200 tons, mill building, New Castle, Del.; expected to go to American Bridge Co.
200 tons, grandstand and club house, Graham athletic field, William Penn highway; W. Ward Williams, Pittsburgh, architect; bids close April 13 by board of directors, Wilkinsburg, Pa.
200 tons, three bridges for state of Vermont.
165 tons, bridge for Central Railroad of New Jersey, Scranton, Pa.; bids asked.
150 tons, electric light company building, Chicopee, Mass.; general contract to La-France Construction Co., Holyoke, Mass.
135 tons, bridge, Montesano, Wash.; general contract to Carl Bjork.
120 tons, bridge for Seaboard Air Line, Calhoun Falls, S. C.; bids asked.
115 tons, bridge for Pennsylvania railroad, Catersburg, Ind.
112 tons, Fairview high school, Fairview, O.; W. F. Hendrich Co., Cleveland, general contractor.
100 tons, Kangesser hotel addition, Cleveland.
100 tons, school building, Morgan, South Fayette township, Pa.; bids close April 11.
100 tons, school building at Ingram, Pa.; bids close April 13.
Unstated tonnage, apartment, 254th street and Riverdale avenue, New York; G. & E. Blum, architects.
Unstated tonnage, postoffice, East Orange, N. J.
Unstated tonnage, First Presbyterian church, New Rochelle, N. Y.
Unstated tonnage, bank building, Holyoke, Mass., to cost $300,000.
Unstated tonnage, two-leaf draw span between Marinette, Wis., and Menominee, Mich.; bids close April 10. Klug & Smith, Milwaukee, engineers.
Unstated tonnage, interstate bridge between Iron County, Wis., and Gogebic county, Mich.; bids close April 19.

Concrete Bars

Work Broadening as Spring Programs Materialize — Prices Holding Steady

OPENING up of spring construction work again was reflected in the concrete reinforcing bar market in the past week. Buffalo district alone included over 2000 tons of new work, Pittsburgh buyers were unusually active. Featuring large tonnage inquiries is the New England building, Boston, to require 4000 tons. Prices on new billet bars generally are steady.

REINFORCING BAR PRICES, PAGE 896

Chicago, April 3.—Billet reinforcing bar fabricators are operating at slightly under 50 per cent. Backlogs have declined somewhat due to recent heavy shipments on the large number of pending projects. Inquiry is more scarce than in several weeks but new building work is being figured constantly. Rail steel bar shipments are considerably above last year. Billet bar prices are firmer on small lots than on attractive tonnages. Rail steel bars are 1.85c to 1.95c, Chicago.

Boston, April 3.—Demand for reinforcing bars remains dull. More figuring is being done than for the past month, which holds out promise. However, the continuity of small orders, mainly from 25 to 50 tons, is the backbone of the situation.

Buffalo, April 3.—Reinforcing bar demand is opening up with a rush, new inquiry of more than 2000 tons being listed this week; a considerable portion is welded mesh for roadwork. A Buffalo producer took one 900-ton lot for second quarter shipment and also several for smaller size. Some good sized orders were placed to be filled directly from steelworks local stocks at prices from 2.25c up. Production has been increased sharply.

Philadelphia, April 3.—Concrete bar orders in the past week were the heaviest in a long time here, aggregating about 2000 tons. Prices for mill shipment continue 1.90c to 2.00c, base Pittsburgh.

Cleveland, April 3.—Since the award of several large concrete bar projects in the previous week, the market has been dull. Inquiries were confined largely to 15 to 25-ton lots. Awards included a 300-ton letting for sewer work in Akron, O., and 80 to 100 tons for sewage disposal plant in Oxford, O., to Truscon Steel Co. New billet bars are 1.80c to 1.90c, Cleveland, with rail steel 1.75c, mill. Combination mill and stock delivery prices remain variable.

Awards Compared

	Tons
Awards this week	10,403
Awards last week	12,762
Awards two weeks ago	5,880
Awards this week in 1927	6,056
Average weekly awards, March	7,761
Average weekly awards, 1928	7,438
Total awards to date, 1927	70,246
Total awards to date, 1928	96,700

CONTRACTS PLACED

1000 to 1200 tons, two buildings in Cleveland for Sears, Roebuck & Co., Chicago, to Truscon Steel Co., noted last week as involving approximately 600 tons.
900 tons, Benjamin Franklin garage, Rochester, N. Y., to Kalman Steel Co.
750 tons, Alden Park Manor apartment addition, Philadelphia, to Concrete Steel Co.
700 tons, Market street viaduct, Shreveport, La., to Laclede Steel Co.
700 tons, school in Buffalo, to Kalman Steel Co. through Whitaker Engineering Co.
600 tons, viaduct, Arkansas highway commission, Fulton, Ark., to Arkansas Foundry, Little Rock, Ark.
570 tons, rail steel, apartment building at 14 West Elm street, Chicago, to Calumet Steel Co., previously reported awarded to unstated fabricator.
500 tons, building at Vandam and Varick streets, New York, to Truscon Steel Co.,

through Ettinger Contracting Co.
425 tons, retaining wall for Johnstown, Pa., to Carlem Engineering Co.
410 tons, Voelker warehouse, Seattle, to Northwest Steel Rolling Mills.
400 tons, rail steel, 300 tons, superstructure for apartment building at 1500 Lake Shore Drive, Chicago, to Calumet Steel Co.; 100 tons, substructure, to Olney J. Dean & Co. McNally & Quinn, Chicago, architects.
310 tons, Market street subway, Harrisburg, Pa., to McClintic-Marshall Co.
280 tons, building for department of agriculture, Washington, to Bourne-Fuller Co.
250 tons, factory, Tenth and Howard streets, San Francisco, to unstated San Francisco jobber.
250 tons, race track construction, Laurel, Md., to Dietrich Bros.
250 tons, bridge, Vicksburg, Miss., to Concrete Steel Co.
240 tons, Transportation building, Seattle, to Northwest Steel Rolling Mills.
210 tons, subbasements for Koppers Co. building, Pittsburgh, through Mellon-Stuart Co., general contractor, to McClintic-Marshall Co.
200 to 300 tons, sewer work, Akron, O., to Truscon Steel Co.
195 tons, Trico Products Co. addition, Buffalo, to Kalman Steel Co.
190 tons, Metropolitan police gymnasium, St. Louis, to Laclede Steel Co.
150 tons, roadwork, Irvington, N. J., to Igoe Bros.
150 tons, bridge over McKenzie river at Springfield, Oreg., to unnamed company.
150 tons, First National bank building, Camden, N. J., to Concrete Steel Co.
140 tons, roadwork in Jefferson county, route 248, Pa., to Truscon Steel Co.
125 tons, building for John L. Dickson, Great Atlantic & Pacific Tea Co. warehouse, Pittsburgh, to Truscon Steel Co.
125 tons, building, Vancouver, B. C., to Northwest Steel Rolling Mills.
123 tons, viaduct over Great Northern railroad, Spokane, Wash., to unnamed company.
105 tons, building for Grennan Bakery Co., Pittsburgh, and apartment building for Kossman & Goldberg, to the Truscon Steel Co.
100 tons, three school houses in southern Ohio, to Concrete Steel Co.
100 tons, building for Keystone Portland Cement Co., Bath, Pa., to Dietrich Bros.; this additional to 450 tons for same job recently placed with Dietrich Bros.
100 tons, Y. W. C. A. building, Williamsport, Pa., to Milton Mfg. Co.
100 tons, Sprague Memorial hospital, Kingston, Pa., to Truscon Steel Co.
100 tons, lighting standards at St. Louis, to Missouri Rolling Mill Co.
100 tons, Fairview school, Seattle, and Economics building, Pullman, Wash., to Pacific Coast Steel Co.
100 tons, Southern Pacific shops, Eugene, Oreg., to Mercer Steel Co.
100 tons, sewage disposal plant, Walla Walla, Wash., to Truscon Steel Co.
100 tons, two bridges, Salem, Oreg., to unnamed interest.
80 to 100 tons, sewage disposal plant, for Miami university, Oxford, O., through A. Phelps Construction Co., Detroit, to Truscon Steel Co.

CONTRACTS PENDING

4000 tons, New England building, Boston.
525 tons, welded mesh, Lake road, Niagara and Orleans counties, N. Y.; bids soon.
500 tons, Erie county, N. Y., bridge replacements, about 50 jobs; first bids April 3, others later.
212 tons, highway work, French camp, Calif.; bids received.
250 tons, school, Belgrade, Ann and Birch streets, Philadelphia.
225 tons, welded mesh for Pavilion-Piffard highway, N. Y.; Foote & Sons, Mt. Morris, N. Y., contractors.
210 tons, welded mesh, for Waterville-New Hartford, N. Y., highway; Utica Construction Co., Utica, N. Y., low bidder.
200 tons, new Mark Twain hotel; St. Louis.
190 tons, Auto Inn garage, Rochester, N. Y.; bids in.
170 tons, welded mesh, Pike-Castile, N. Y., highway; Canty, O'Neill and Crandall Inc., Buffalo, contractors.
150 tons, welded mesh, Bardford-Mt. Jewett, Pa., highway; Fred W. Knickenberg, Buffalo, contractor.
150 tons, reservoir, Towson, Md.
150 tons, Marietta memorial hospital, Marietta, O.; bids being taken.

Rails, Cars

Secondary Rail Buying Still Active—First Quarter Car Awards Under 1927 Rate

BUYING of rails and track accessories in the Chicago district continues alive, although slightly less active. Mills have sufficient backlogs to operate at 90 per cent to July 1. Freight car awards for the first quarter of 1928 totaled 16,658, a drop from 24,824 in the same months of 1927. Current car activity includes the North American Tank Car Corp. order of 300 refrigerator cars.

RAILROAD TRACK MATERIAL PRICES, PAGE 896

New York, April 3.—With domestic freight car awards in March involving 2796 cars, according to preliminary reports, the total for the quarter just closed amounts to 16,658, against 24,824 in the first quarter of 1927. Passenger car business showed marked improvement, due largely to the placing of 613 cars by the Pennsylvania early in the quarter. The total for the three months involves 953 cars, against slightly more than 1600 cars for all of last year. In the first quarter eastern railroads, those along the Atlantic seaboard from north to south, purchased 3370, as against 5035 in the corresponding period of last year. Railroad shops, according to present figures, were awarded considerably fewer cars than in the first quarter of 1927, the total aggregating about 400, as against 4085.

Locomotive buying for domestic account in the first quarter involved 151 locomotives, on the face of the preliminary figures. Awards in March involved 33 locomotives, as compared with a similar number in February and 85 in January. At this rate the annual total for this year would amount to 564 locomotives, against around 735 last year and more than 1300 in the year before.

Current buying of both cars and locomotives is light.

Pittsburgh, April 3.—Light rail orders are scarce from central Pennsylvania where mines operate only one or two days a week. They are fair from western Pennsylvania, West Virginia, eastern Kentucky and other sections where three, four or five-day week operating schedules are maintained. The price is unchanged at $36.

Spike prices are firm at 2.80c. Some orders for small spikes from jobbers involving as much as three carloads at a time, presented yesterday at 2.70c, were returned with the announcement that 2.80c is the minimum.

Chicago, April 3.—One order for 4000 tons of standard steel rails as a part of the secondary buying program was placed in the Chicago district. While considerable secondary inquiry is in the making no definite tonnage is listed. Rail mill operations remain at 90 per cent with indications the rate can go through to July 1. Light rail tonnage is in miscellaneous carload lots.

Track fastenings inquiry is active. This includes the second quarter inquiry of the Pennsylvania railroad. The aggregate of this second quarter tonnage is understood to run into important volume, fully equivalent to a year ago. About 2000 tons of track fastenings was closed by Chicago mills during the week. Track fastenings operations average about 70 per cent for the district. Departments producing tie plates are operating in full, while operations for angle bars are not far behind.

The inquiry for 200 miscellaneous freight cars for the Atlantic Coast Line has come into this market. North American Tank Car Corp. purchased 300 refrigerator cars from Pressed Steel Car Co.

CAR ORDERS PLACED

Aluminum Co. of America, one tank car, to Standard Tank Car Co.
Fruit Growers Express, 600 underframes, previously noted placed, went to American Car & Foundry Co.
North American Tank Car Corp., 300 refrigerator cars, to Pressed Steel Car Co.
Norfolk & Western, 250 all steel, 90-ton coal cars, to be rebuilt at company shops at Roanoke, Va.
Northern Pacific, 50 caboose underframes, to Pacific Car & Foundry Co.
Pond Creek Collieries, 60 mine cars, to Hockinsmith Wheel & Mine Car Co.
Ringling Bros. circus, 65 steel circus cars, including 10 work-horse cars, 6 ring-horse cars, 4 elephant cars, 1 camel car and the balance of miscellaneous, 50-ton, 70-foot cars, to Warren Tank Car Co.

LOCOMOTIVE ORDERS PLACED

Atchison, Topeka & Santa Fe, 15 tenders, to Lima Locomotive Works Inc.
Canadian National, 12 snow plows, to Eastern Car Co.
Southern, ten locomotives, to Lima Locomotive Works Inc.

CAR ORDERS PENDING

Detroit, Toledo & Ironton railroad, four miscellaneous coaches.
Egyptian State railways, 320 wagons; bids asked.
Lake Superior & Ishpeming railroad, 250 ore cars; inquiry abandoned.
North American Car Corp., 500 tank cars in addition to 300 poultry cars, previously noted pending.
Pacific Fruit Express, asking bids for 1200 underframes; previously noted as 400-800 underframes.

Wire

Heavy Stocks Result from First Quarter Specifications—Current Buying Is Light

WITH generally large stocks as a result of full specifications against first quarter contracts, in the face of higher prices for second quarter, sales of wire are light at the moment, though some specifications are coming out against second quarter contracts. Weather in the Northwest is stimulating farm buying in that section. Prices are steady.

WIRE PRICES, PAGE 896

Chicago, April 3.—Activity in wire has been speeded markedly the past week. Contracting for second quarter is developing. Buying is particularly active from manufacturing lines and in woven wire fencing and barbed wire. Sales of wire nails still lag. Open weather has stimulated the market. Reports from St. Paul and the Northwest indicate a buying movement in that territory should be under way soon. Mills report less uneasiness in resale prices. Some price resistance to second quarter contracting is said to be disappearing. Wire nails are quoted at $2.70, Chicago or western mill, and bright plain wire at 2.55c.

Worcester, Mass. April 3.—Demand for steel wire and wire products continues steady with some expansion in advanced second quarter specifications at firm prices. Buying of specialty material and manufactures wire is fairly brisk. Makers are holding firm for 2.65c, Worcester, base, for plain wire despite some reported resistance by consumers. Drawing mill operations remain practically unchanged at 65 to 70 per cent.

Buffalo, April 3.—Liberal specifications for wire by automobile manufacturers are coming to Buffalo makers. Demand for welded mesh also is exceptionally brisk.

Pittsburgh, April 3.—Wire and wire products specifications during the closing days of March were numerous and involved a large tonnage. These were to wind up low-priced contracts which expired with the month and because buyers now are well supplied, little specifying will be done the remainder of this month against $2.65 nail contracts. Mixed carload business is expected to be dull until after jobbers' stocks have been turned over in the spring buying movement. The 2.50c price on plain wire is firm and specifications on manufacturers' wire are steady.

Detroit, April 3.—Jobbers as well as consumers of wire products covered so generously early in the last quarter that new business has been light contrasted with consumption, but on such little business as is going users encounter no difficulty in getting concessions of $1 to $2 per ton under $2.65 for Cleveland for nails and 2.50c for plain wire. The wire level is stronger than the nail. April consumption is expected to match March.

Cleveland, April 3.—Nail and wire specifications against first quarter contracts closed up the month with unusually heavy releases. Although too early to indicate the rate of operations in April, producers expect heavy output. The price of $2.65 per 100-pound keg on wire nails to jobbers in this district is reported firm. Some shading from southern Ohio and western mills continues, although not as severe as in the first quarter. Plain wire is firm at 2.50c, Cleveland.

Strip Steel

Resistance to Shaded Prices Claimed by Makers

STRIP PRICES, PAGE 896

Pittsburgh, April 3.—Cold strip steelmakers here say what business they are getting is on the basis of 2.90c (3.15c for 1 to 3 tons). Hot strip specifications are active on contracts at 1.90c to 2.20c, depending upon width, and on some particularly difficult material prices are $2 to $4 per ton higher. One important strip maker here had the heaviest month since June in specifications on hot and cold strip. Shipments were correspondingly high, heavier than in many months. Heavy shipping instructions the closing days of March to close low-priced contracts helped to make this record. Operations average 70 to 80 per cent.

Philadelphia, April 3.—Only a portion of the hot and cold-rolled strip trade here is under contract for second quarter. Those who have not closed show no concern over prices. Many consumers failed to specify all their tonnage on first quarter contracts despite the fact prices on the contracts are lower than those prevailing for second quarter.

Youngstown, O., April 3.—Added to the high rate of operations of independent valley plants comes more cheerful news of second quarter specifications carrying price advances of $2 to $4 a ton over first quarter.

Cleveland, April 3.—Hot strip steel specifications still are heavy from stamping manufacturers and automotive parts makers. Although shipments are tending to exceed specifications in a few cases, backlogs of mills continue in about the same status as last week. On narrow sizes shipments are 30 to 45 days deferred. Good operations are assured the next several weeks while mills work off last minute releases on first quarter contracts. Hot strip prices for current sale are firm at 1.90c to 2.00c, Pittsburgh, for 6 to 12-inch, 2.10c to 2.20c for 3 to 6-inch, and 2.20c to 2.40c for under 3-inch. Cold strip prices are firm in this district at 2.90c, for lots of three tons and over. Demand generally is light although several heavy releases were received during the week.

Detroit, April 3.—The cold rolled strip price for second quarter appears to be settling to 2.75c, Pittsburgh-Cleveland, for the automotive trade. On hot strip second quarter arrangements in many cases are said to be $2 to $3 per ton over what the individual buyers paid for first quarter, which would give most tonnage buyers a figure below current quotations to general users. Strip has not displayed the strength of sheets or other finished products. Consumption, however, shows no lag and April shipments in some instances will exceed those of March.

Cold Finished Steel

Specifications Indicate Heavy Month If Rate Is Sustained

COLD FINISHED PRICES, PAGE 896

Pittsburgh, April 3.—Cold finished bar buyers in automotive and allied industries are specifying steadily against contracts, but other lines are represented in the buying only in a fair way. Specifications for March are somewhat ahead of February in a number of instances, and if present automotive consumption is sustained April is expected to exceed March by a good margin. Operations average about 65 per cent. The 2.20c figure is firm.

Cleveland, April 3.—Cold drawn bar demand continues heavy from the automotive industry. March sales generally were heavier than in February, and some makers estimate first quarter business as exceeding the same period of 1927 by 20 to 35 per cent. Heavy backlogs were carried into April assuring good production for at least the next three to five weeks. General manufacturing demand for cold drawn bars is in good volume. Prices are firm at 2.25c, Cleveland, for both spot and contract specifications.

Detroit, April 3.—Many cold finished bar users have closed on second quarter contracts at 2.20c, Chicago. Current shipments are at the March rate.

Bolts, Nuts, Rivets

Specifications Being Filed Against Second Quarter Orders

NUT AND BOLT PRICES, PAGE 896

Chicago, April 3.—March specifications for bolts, nuts and rivets made

(*Concluded on Page* 911)

Nonferrous Metals

Upturn in Prices Develops Throughout List of Metals—Copper Leads Way in New Display of Strength—Good Buying Done

Prices of the Week, Cents a Pound

	Copper			Straits Tin		Lead		Zinc	98-99%	Spot	Ingot
	Electro delivered	Lake delivered	Casting refinery	New York Spot	May	New York	Lead East St. Louis	St. Louis	Aluminum	Antimony	Nickel
Mar. 28	14.12½	14.27½	13.85	53.00	52.87½	6.00	5.85	5.67½	23.90	9.65	35.00
Mar. 29	14.22½	14.30	13.87½	53.00	52.90	6.05	5.85	5.67½	23.90	9.65	35.00
Mar. 30	14.25	14.30	13.87½	53.62½	53.50	6.07½	5.85	5.70	23.90	9.75	35.00
April 2	14.25	14.30	13.87½	54.00	53.75	6.10	5.95	5.70	23.90	9.75	35.00
April 3	14.25	14.30	13.87½	53.62½	53.37½	6.12½	5.97½	5.72½	23.90	9.62½	35.00

NEW YORK, April 3.—With copper in the lead nearly all the nonferrous metals strengthened during the past week. Tin, after slipping back to 53.00c, went up to 54.00c with March statistics unusually strong. Lead went up 10 points from its low price with continued good buying. Zinc changed little but held firm in a quiet market. Aluminum and nickel remained steady.

Copper products prices, except on tubing, went up with the rise in ingot metal. Wire went up ⅛-cent and other products ¼-cent. Brass products prices did not change. Buying improved after a quiet spell, and mill operations remain on a high level in most products.

Copper—Good business was done at 14.12½c. Connecticut, largely for April shipment, but some was for May and a little for June. Users are well covered for April. Not much metal has been sold at 14.25c. Sales were made at 14.25c and 14.37½c Midwest. Export business has continued large. The market in copper is the strongest since last autumn, and the price is the highest in a year and a half.

Tin—Buying of tin has not been large with the exception of one day in the past week but shipments into consumption continue large on earlier sales. Domestic deliveries in March at 7960 long tons were the largest ever made in a month with the exception of one month several years ago. For the first quarter deliveries were 19,165 tons or 360 tons larger than in the corresponding quarter a year ago. Several times in earlier years, however, the sum has been equaled or surpassed. World statistics for the month show the visible supply falling 2059 tons or a little less than the increase a month ago. New supplies other than those from the Straits were light, and deliveries in Europe were of good size.

Zinc—Prime western metal has changed little but some metal that was offered slightly under 5.70c, East St. Louis, was taken up. New business has been light. The ore market held unchanged the past week at $38 a ton.

Lead—Buying has been active for April and May shipment and prices naturally have worked up a little from 6.00c, New York, the lowest level in several years. The American Smelting & Refining Co. followed the open market. The East St. Louis price is higher at 5.97½c to 6.00c.

Aluminum—Some business is going mostly for early shipment, and prices are steady.—*Daily Metal Trade.*

Quicksilver Price Strong

New York, April 3.—Quicksilver is strong at $124 to $125.50 a flask and on account of strength abroad it is believed that prices here soon will be higher.

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	18.75
Copper, hot rolled	23.00
Lead, full sheets (cut ¼c more)	9.75
Zinc (100-pound base)	8.50
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	23.62½
Copper	24.50
RODS	
Yellow brass (high, full turning)	16.50
Naval brass	19.25
WIRE	
Copper, car lots	15.75
Yellow brass (high)	19.25

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25
Chicago	9.25 to 9.50
Cleveland	9.50 to 10.00
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.25 to 7.50
ZINC	
New York	3.50
Cleveland	3.00 to 3.25
HEAVY COPPER AND WIRE	
New York	11.50 to 11.75
Boston	11.00 to 11.75
Chicago	10.75 to 11.00
Cleveland	11.50 to 11.75
RED BRASS BORINGS	
New York	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	10.00 to 10.25
Chicago	9.50 to 9.75
Cleveland	10.00 to 10.25
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.25 to 6.50
Cleveland	5.50 to 5.75
ALUMINUM	
Clippings, Cleveland	17.50
Borings, Cleveland	9.50
Cast, Cleveland	13.00
Cast, Boston	11.50 to 12.00

Secondary Metals

Remelt Aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	12.25 to 12.50

Coke By-Products

Toluol and Benzols in Demand—Solvent Naphtha Is Shaded

New York, April 3.—Toluol continues to move in heavy volume, but with prices unchanged. Pure and 90 per cent benzols also are moving well. In fact, only in solvent naphtha and commercial xylol do there appear signs of sluggishness, and on solvent naphtha occasional shading under the current market is noted.

A good spot demand still prevails for naphthalene, druggists rounding out their spring cleaning season requirements; also, sulphate of ammonia, with prices unchanged at $2.35, delivered. The export sulphate market continues nominal at $2.20, port, for material in double bags.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent bezol	0.22	.....
Toluol	0.35	.....
Solvent naptha	0.30	.....
Commercial xylol	0.30	.....
Phenol	0.17 to 0.19	.....

Per pound at Producers' Plants

Naphthalene flakes	0.05 to 0.06½
Naphthalene balls	0.06 to 0.07½

Per 100 Pounds Delivered

Sulphate of ammonia	$2.35

Ingot Output Records Fall in March

Chicago, April 3.—Inland Steel Co. set a new production record in March with 158,000 tons of steel ingots from the 25 of its 26 open-hearth furnaces which were active practically the whole month. A new shipping record also was set by about 2000 tons. Under a new profit-sharing basis 15,260 shares of common stock have been distributed among employes.

Weirton, W. Va., April 3.—When the Weirton Steel Co., with 11 open hearths, produced 103,574 tons of steel ingots last month it broke its monthly record.

Warehouse

First Quarter Sales Generally Good Although Behind 1927 in Many Cases—New York District Jobber Revises Quantity Differentials

SALES by warehouses in March generally compared favorably with February's, but first quarter totals in many cases were below those in 1927. Prices are steady in most districts with New York jobbers revising base prices and introducing quantity differentials.

Warehouse business has developed a more uniform line of movement in the Boston district the past week, with consumers showing a wider demand though holding largely to small lots, for which immediate delivery is being demanded. Shipments compare favorably with last April.

An important departure from the usual method of quoting major products out of New York metropolitan warehouses has been put into effect by a leading jobber and is receiving the serious consideration of others in that district. Base prices have been revised on several products and quantity differentials established on the relatively larger lots. In addition, a flat service charge on all lots under 250 pounds has been set. The new schedule established by this jobber calls for a 3.25c base on bars; 3.30c on shapes and plates; 5.10c on floor plates; 3.90c on blue annealed; 4.00c on bands and 4.50c on hoops. These base prices apply to all lots up to 3999 pounds. On lots from 4000 to 7999 pounds there is a reduction of 15 cents; on 8000 to 14,999 pounds, 25 cents and on 15,000 pounds and over 40 cents per 100 pounds.

Sales of iron and steel by Buffalo warehouses have run slightly behind the first quarter of 1927. Failure of spring building to open up in March was partly responsible. Warehouse operators generally look for April to be the first month this year to surpass the same month of last year.

Detroit warehouses are transferring to April the high hopes they originally held for March. March tonnage was equal to February but the daily rate was lower. Expected early spring expansion in the building industry did not materialize. With the Ford Motor Co. distributing parts business rather generously, the warehouse interests expect orders from this source.

Pittsburgh sheet jobbers note a slight increase in tonnage sold in March compared with February, whereas the warehouses handling heavier rolled products note a slight falling off. The latter market is flat at present, due to slack on the part of the small boiler, structural, ornamental iron and other shops which usually furnish them with their orders.

(*Concluded on Page* 911)

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.50c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York	3.04c to 3.24c
Philadelphia*	2.50c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

*Plus quantity differentials.

IRON BARS

Baltimore	2.50c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York	2.80c to 3.24c
Philadelphia*	2.50c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

*Plus quantity differentials.

REINFORCING BARS

Baltimore	2.80c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.30c to 2.80c
Pittsburgh	2.90c to 3.175c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.50c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.30c
New York	3.30c to 3.34c
Philadelphia	2.40c to 2.80c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.50c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York (sheared and universal)	3.30c to 3.34c
New York (floor)	5.10c to 5.25c
Philadelphia	2.40c to 2.80c
Phila., 3/16-in.	2.60c to 3.00c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED SHEETS

Baltimore	3.00c to 3.66c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago, to 40 in.	3.50c
Chicago, over 40 in.	3.60c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	3.90c
New York	3.79c to 3.89c
Portland	4.00c
Philadelphia	3.15c
*Pittsburgh	3.10c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

*Price on 25 or more sheets.

No. 24 BLACK SHEETS

Baltimore	3.60 to 4.00c
Boston	5.00c
Buffalo	4.20c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.00c
New York	4.10c
Philadelphia	4.25c
Pittsburgh†	3.75c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

†Price on 10 to 24 bundles.

No. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.75c
Boston	5.85c
Buffalo	5.05c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.60c
Detroit	4.90c
Ft. Worth	5.75c
Houston	5.30c
Los Angeles	5.35c
New York	4.70c
Philadelphia	5.10c
Pittsburgh†	4.60c
Portland	5.65c
San Francisco	5.50c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

†Price on 10 to 24 bundles.

BANDS

Baltimore	3.25c to 4.06c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.35c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.60c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons, squares	Flats, squares
Baltimore	3.25c	3.75c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	4.50c*	.....
New York	3.40c	3.90c
Philadelphia	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c*	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia†	5.00c

*Net base, straightening, cutting, boxing one ton or more.

†Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

Coast Buying Holds Well

Structurals and Reinforcing Bars Most Active—Fabricators Seek Agreement on Foreign Steel

SAN FRANCISCO, March 31.—(*By Air Mail*)—Trading on the Coast continues well sustained in most lines, structural steel and concrete bars being most active. Bookings include 15,000 tons of line pipe for a Texas concern, 4300 tons of shapes for a department store in Oakland and 1000 tons of bars for the government at Cristobal.

Fabricators in the San Francisco district are endeavoring to reach an agreement relative to the purchase of foreign plain material. If they are successful it will have a stabilizing influence. Fabricated and erected prices are extremely low and recently better than $73 a ton erected has been done on apartment house projects. These low prices are due almost entirely to the importation, by some fabricators, of foreign material which can be obtained at $17 a ton below the domestic market.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00
*Dutch	24.50

*C.i.f. duty paid.

Pig Iron and Coke

Foundry operations have shown little improvement and demand for foundry pig iron and coke is by no means heavy. Most sales continue to involve small lots, seldom over 100 tons. No changes in prices are noted.

Bars, Plates and Shapes

Awards of concrete bars this week totaled 2132 tons, bringing the aggregate for the first quarter to 26,473 tons, compared with 14,297 tons for the corresponding period in 1927. Bar jobbers report a fair volume of small business. Pending business now exceeds 11,000 tons. Prices in the San Francisco district on out-of-stock material continue weak and 2.25c represents the lowest quotation. This is not surprising when it is considered that foreign bars are offered at 1.50c c.i.f. duty paid.

Plate bookings during first quarter were not quite as heavy as for the same period last year, the respective tonnages being as follows: 9442 tons for 1928 and 10,621 tons for 1927. No awards were reported this week but several projects of importance are now being figured on. Among these are the Wildcat and Sequoia aqueducts in Oakland which will take over 8400 tons, and 700 tons for a barge for the Santa Fe at San Francisco. Prices on domestic material remain firm at 2.30c c.i.f.

Awards this week aggregated 2669 tons, bringing the total for first quarter to 46,587 tons, compared to 47,955 tons for the corresponding period in 1927. Other important awards, in addition to the Capwell store in Oakland, include 530 tons for a bridge at Springfield, Oreg., and 400 tons for an apartment house in Los Angeles. Pending business involves over 10,000 tons. The largest project pending calls for 947 tons for a bridge over the San Joaquin River near Herndon, Calif. Domestic material continues firm at 2.35c c.i.f. Foreign material is quoted at around 1.50c c.i.f. duty paid.

Demand for cast iron pipe is fairly well maintained and awards this week aggregated 1086 tons, bringing the total to date this year to 21,811 tons, compared with 26,975 tons for the same period last year. The largest letting involved 413 tons of 10 to 24-inch centrifugal pipe for Santa Ana, Calif., placed with the United States Cast Iron Pipe & Foundry Co. Interest continues to center around the inquiry of the East bay municipal utility district for the Wildcat and Sequoia aqueducts calling for over 30,000 tons. New inquiries involve 210 tons for San Diego and 129 tons for San Bernardino. On 6-inch and larger $35 a ton delivered is the prevailing price.

Northwest Builds Much

SEATTLE, March 28.—Construction activity continues unabated. March will register an unexpected large total in this city, while reports from Portland and other centers indicate better than normal building. This week contracts were awarded for the Music Box theater, an addition to the Virginia Mason hospital and the foundations for the Pacific Coast Cement Co. plant. At Portland the Dougan-Hammond Construction Co. took the contract for the 10-story reinforced concrete Medical Dental building, to cost $850,000.

Steel awards in the Northwest this week totaled approximately 1200 tons of reinforced materials and 300 tons of structurals. Several large projects are developing rapidly and will be up for figures soon.

The market remains firm and steady although mill representatives state demand is slow. Less competition from imported steel is evident in the Seattle territory, although Portland and British Columbia are receiving the usual quantities of foreign materials.

Pig Iron and Coke

Foundry operations are fairly active as cannery and mill work is being distributed. However, there is little buying as stocks of pig iron and coke are ample for present needs. For quick delivery Columbia iron is being purchased in small tonnages and some British and Continental coke is afloat for discharge here. Prices are reported unchanged.

Bars, Plates and Shapes

Mill prices are unchanged, the market holding steady, bars and shapes at 2.35c and shapes at 2.30c.

Awards of reinforcing this week included the following to the Northwest Steel Rolling Mills, Seattle: 410 tons, Voelker warehouses, Seattle; 240 tons Transportation building for Stimson Realty Co., 25 tons for Music Box theater, Seattle, and 125 tons shipped to Vancouver, B. C., for a building project. Pacific Coast Steel Co. booked 100 tons for the Fairview school, Seattle, and Home Economic building, Pullman, Wash. Truscon Steel Co. is supplying 100 tons for the sewage disposal plant, Walla Walla, Wash., and the Mercer Steel Co. booked 100 tons for the Southern Pacific railroad machine shops, Eugene, Oreg. An unnamed interest is supplying 100 tons for two bridges at Salem, Oreg. Peck & Hills warehouse, 1000 tons, and the Bon Marche, 2000 tons, are the largest tonnages pending in Seattle.

No new inquiries for plates developed this week, recent awards having covered practically all projects.

Fabricating shops are busy and while no large projects are pending considerable work is to be up for figures soon. Poole & McGonigle are reported to have taken the contract for furnishing 280 tons for the Smith Ferry bridge, Roseburg, Oreg., general contract to Clyde Catching, Roseburg. Portland will vote May 18 on a bond issue of $4,250,000 covering the cost of the Willamette river bridge at St. Johns. Lindstrom & Feigenson were low bidders yesterday for constructing a bridge at Springfield, Oreg., involving 530 tons of structurals and 155 tons of reinforcing. Carl Bjork was low bidder on a county bridge over the Chehalis river requiring 135 tons of structurals.

Erie City Iron Works, Erie, Pa., has been awarded two 807-horsepower high pressure boilers and five 456-horsepower boilers of special design for the new plant of the Union Bag & Paper Co., Tacoma. The award was made through Hardy, Ferguson & Co., engineers, New York.

Bids are in for furnishing Brighouse, B. C., with 510 tons of seamless steel pipe. Shelton, Wash., will receive bids April 19 for water system extensions including 1500 feet of 6-inch pipe, gates and valves.

Refractories

Repairs Prompt Most Orders—March Orders Exceed February

REFRACTORIES PRICES, PAGE 927

Pittsburgh, April 3.—Since the recent large orders for refractories placed by the Timken Roller Bearing Co., Carnegie Steel Co., Koppers Co., and a few other large consumers, the market has settled down to a "repair" basis. Orders involve actual needs only, both in fire clay and silica brick for blast furnace and open hearth repairs, with an occasional partial new lining. These orders mostly involve single carloads, with an occasional 50,000-brick order, and the aggregate for March is thought to be somewhat ahead of February.

Little in the way of new construction is contemplated, although the Pittsburgh Plate Glass Co. will undoubtedly require large quantities for its expansion program at Ford City, Pa. The Wheeling Steel Corp. contemplates some work which may later require considerable brick. Chrome and magnesite specifications are active, and March has been the heaviest month of the year to date.

Kiln operations are not expanding, continuing to average 60 to 70 per cent. Quoted prices are as well stabilized as they ever are, with the majority of makers observing the market and a few small manufacturers offering usual inducements to obtain business.

Warehouse Sales Improve

(*Concluded from Page* 909)

Improvement is expected with spring. Sheet jobbers find rail deliveries tightening up gradually. Because of increased handling costs sheet jobbers are firm. Second quarter average prices paid by sheet jobbers will be somewhat greater than in the first quarter, so this tendency may be more pronounced.

Baltimore jobbers of heavy rolled steel products are considering the possibilities of quantity differentials on steel bars. Quantity extras on bars, equivalent to those in effect in Philadelphia, may be put into use here within the next few weeks. It is felt here that quantity extras would be of material help in increasing the average price. The situation in Baltimore is not quite as bad as it was in Philadelphia when the quantity extras were adopted in that city. The general atmosphere in the jobbing trade here reflects a somewhat greater tendency toward stability than in the past. Sheet prices are less satisfactory than at any time in more than a year. Price shading on sheets out of warehouse stocks here is frequent and violent. Jobbers during the past week have sold galvanized sheets out of stock at as low as 3.89c base delivered locally. These sheets were obtained on first quarter contracts at 3.50c base Pittsburgh, and the freight rate to Baltimore is 31.00c per 100 pounds. Hence the apparent margin on which the jobber traded in this particular case was only $1.60 a ton.

Philadelphia jobbers report March sales as exceeding those of February. Prices are unchanged but generally firm.

Cleveland warehouse sales totals for March generally equaled or exceeded those of February and January. Prices generally are firm on all products for local delivery. A weakness for shipment into the Canton-Massillon-Akron district has been reported where $2 a ton has been shaded from bar quotations.

St. Louis distributors report stimulation in the movement of building materials, due to commencement of numerous municipal jobs and resumption of highway work. Extensive lettings have been made of street improvement contracts in St. Louis, and with the arrival of more favorable weather work has begun on delayed reconstruction in the area affected by the cyclone last year. According to one leading warehouse interest, the outlook for building materials for spring and summer in this district is the best in recent years. Buying of sheets and light plates is reported good, March sales being larger than the same period last year.

Valley Pig Iron Stronger

(*Concluded from Page* 897)

are limited to car lots and 100 to 200 tons. A Louisville stove company wants 1000 tons of northern iron and the Worthington Pump & Machinery Corp., 450 tons, both for second and third quarter delivery. No change in prices is noted.

Chicago, April 3.—March shipments of northern pig iron, topping the 100,000-ton mark, gained over February shipments. Spot buying continues moderately active. Large tonnage orders are more scarce with second quarter contracting largely out of the way. The bulk of second quarter business was placed during the past eight or ten weeks. Several options have been taken on iron to be delivered by boat from Cleveland furnaces during the navigation season. These options were slightly under the market. The price of $18.50, Chicago furnace, is holding on spot and contract business. Silvery sales are light. A few charcoal iron orders have been placed at $24, furnace.

Several large melters in this district are reported ready to close for third quarter and sales are expected soon. It develops March shipments were the largest of any month in the past year and a half. One Federal stack at South Chicago may be blown out in a few weeks.

St. Louis, April 3.—While sales of pig iron are not particularly heavy, conditions in the market are satisfactory. A wide variety of users are purchasing, and the volume and character of inquiry indicates good tonnages are likely to be closed soon. Northern and southern sellers report price situation stronger than at any time this year. Shipments in March were the largest for any month this year, and slightly in excess of the same period in 1927. Sales reported in the past week aggregated approximately 5600 tons, of which 4500 tons was booked by the St. Louis Coke & Iron Co. An Indiana melter took 1000 tons, and 1700 tons was placed in the tri-cities. A local specialty maker purchased 500 tons and a job plant 300 tons. The Sloss-Sheffield Steel & Iron Co. sold about 1000 tons, including 600 tons to a job plant in this district.

Birmingham, Ala., April 3.—Shipment of pig iron is steady, and new business shows little change. The price is firm at $16, base, Birmingham. The probable make for April is well covered. Production is a little better, with the leading interest blowing in a furnace on foundry iron.

Philadelphia, April 3.—Pig iron is featured here by the purchase of 6000 tons of basic and increasing demand for low phos. Inquiry for the latter aggregates 2500 tons, Pennsylvania railroad seeks 100 to 300 tons of foundry for Altoona, Pa. Prices are unchanged.

The Colonial Iron Co. expects to blow out its blast furnace at Riddlesburg, Pa., prior to April 15. The furnace will be relined and is expected to be put back in blast about the middle of June.

Bolt, Nut Buying Active

(*Concluded from Page* 907)

only a slight gain over February. An increase was evident during first quarter compared with the final quarter of 1927. Railroad car shops and fabricating shops have been slightly more active in ordering rivets. Jobber buying of bolts and nuts is active. Contract consumers are covering steadily for second quarter. Prices are steady at 70 off for machine and plow bolts and 3.00c, Chicago, for large structural rivets in carload lots.

Pittsburgh, April 3.—Specifying for rivets last week was active in winding up old contracts. Some specifications already are being received against the 2.90c second quarter contracts. Nut and bolt specifying at 70 off to large users and 60 off to small, does not show much spirit, only a fair tonnage being taken by jobbers and large users. April is expected to give larger tonnages and meantime operations average no higher than 65 per cent.

Cleveland, April 3.—Contracting for bolts, nuts and rivets for second quarter is nearly complete and in good volume. Current specifications continue at a good rate. March business showed improvement over February, although rivet sales were stimulated near the end of the month by the increase in second quarter prices. Operations average 65 per cent.

More Power Is Used

Worcester, Mass., April 3.—A good barometer of industrial activity is the consumption of electric power by the metal industry in New England which is served by the New England Power association. In the first two months of 1928 consumption increased 2.1 per cent over the like period of 1927. The 19 leading industries took 3.5 per cent more power than last year.

Ten More Furnaces Placed in Blast

PRODUCTION of coke pig iron in the United States continued on the upward swing in March and marked the third consecutive month to register improvement. It is to be noted, however, that the gain was only about half of that made in March of the two previous years. Active blast furnaces rose from 186 to 196 on March 31 and forecasts a higher production rate for April.

Total production in March was 3,208,281 gross tons, which compared with the 2,898,668 tons of the preceding month, was an increase of 309,613 tons. March, however, had 31 days against 29 in February. Average daily production was 103,493 tons and an improvement over the February rate of 99,954 tons by 3539 tons per day, or 3.54 per cent. Output passed the 100,000-ton mark for the first time since last June. In March, 1927, daily production was at the rate of 112,326 tons per day.

Of the 196 blast furnaces making pig iron at the close of the month, 40 were merchant and 156 nonmerchant. Of the merchant class 2 were blown in and none blown out or banked; of the nonmerchant class 11 were blown in and 3 blown out. Operations based on the ratio of production to capacity were at the rate of 73.8 per cent, as compared with 71.2 per cent in February and 79.8 per cent in March, 1927.

Stacks blown in during March were: In Ohio: Youngstown C and Hubbard No. 1, Youngstown Sheet & Tube Co.; United, Central Alloy Steel Corp.; one Central, American Steel & Wire Co. In Pennsylvania: Coatesville A, Bethlehem Steel Co.; Perry, Pickands, Mather & Co.; Duquesne No. 5, Carrie No. 1 and Isabella No. 1, Carnegie Steel Co.; one Eliza, Jones & Laughlin Steel Corp. In Maryland: Maryland A, Bethlehem Steel Co. In Alabama: Bessemer No. 1, Tennessee Coal, Iron & Railroad Co. In Indiana: Gary No. 6, Illinois Steel Co.

Stacks blown out during the month were: In Ohio: Buckeye, American Rolling Mill Co. In Pennsylvania: Carrie No. 7, Carnegie Steel Co. In Indiana: Gary No. 11, Illinois Steel Co.

Automatic Fire Alarm Co. New York, has increased its capital stock from $800,000 to $1,000,000.

Rate of Operations

(Relation of Production to Capacity)

	1928*	1927*
March	73.8	79.8
February	71.2	74.7
January	65.4	71.2
December	.....	61.8
November	.....	63.0
October	.....	64.5

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926, as compiled by American Iron and Steel institute.**

MONTHLY PRODUCTION

	1928	1927	1926	1925
Jan.	2,855,515	3,101,346	3,319,789	3,372,207
Feb.	2,898,668	2,940,604	2,923,850	3,214,067
Mar.	3,208,281	3,482,107	3,458,171	3,571,422
Total 3 mos.	8,962,464	9,524,057	9,701,810	10,157,696
April	.....	3,424,377	3,438,805	3,211,235
May	.....	3,391,067	3,477,820	2,933,907
June	.....	3,089,726	3,232,478	2,679,045
July	.....	2,954,625	3,224,663	2,665,262
Aug.	.....	2,950,674	3,200,723	2,707,171
Sept.	.....	2,782,500	3,163,269	2,725,885
Oct.	.....	2,812,015	3,334,206	3,017,889
Nov.	.....	2,661,863	3,237,992	3,023,257
Dec.	.....	2,698,208	3,089,175	3,249,057
Total,	.....	36,289,112	39,100,941	36,370,404

AVERAGE DAILY PRODUCTION

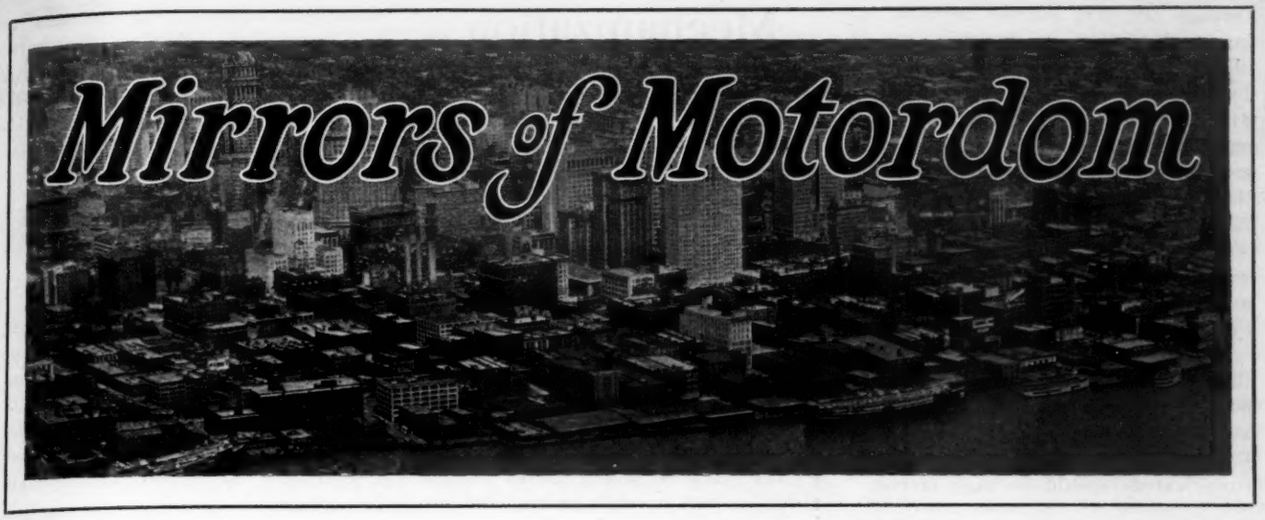
	1928	1927	1926	1925	1924
Jan.	92,113	100,043	107,039	108,781	97,273
Feb.	99,954	105,021	104,423	114,788	105,987
Mar.	103,493	112,326	111,554	115,207	111,787
Apr.	.....	114,146	114,627	107,041	107,537
May	.....	109,388	112,187	94,642	84,515
June	.....	102,991	107,749	89,301	67,427
July	.....	95,311	104,021	85,976	57,531
Aug.	.....	95,183	103,249	87,328	60,741
Sept.	.....	92,750	105,442	90,862	68,454
Oct.	.....	90,710	107,555	97,351	79,419
Nov.	.....	88,728	107,933	100,775	83,832
Dec.	.....	87,039	99,651	104,808	95,367
Ave.	98,488	99,422	107,126	99,645	84,908

DIVISIONS OF PRODUCTION

1927	Merchant	Nonmerchant	Spiegel and ferromanganese
Jan.	745,766	2,355,580	40,330
Feb.	642,804	2,297,800	31,605
March	762,354	2,719,753	35,483
April	735,385	2,688,992	37,657
May	701,582	2,689,485	38,531
June	714,268	2,375,458	39,764
July	736,707	2,217,918	35,768
Aug.	667,104	2,283,570	30,383
Sept.	651,246	2,131,254	26,712
Oct.	688,880	2,123,135	24,763
Nov.	652,237	2,009,626	24,372
Dec.	660,616	2,037,592	27,809
Tot.	8,358,949	27,930,163	393,177
1928			
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
March	606,057	2,602,224	34,587

MARCH PIG IRON

	No. in blast last day of month Mar.	Feb.	—Total tonnage made— Merchant	Nonmerchant	—Totals— Mar.	Feb.
Ohio	43	40	113,547	628,650	742,197	657,434
Pennsylvania	64	59	90,515	885,005	975,520	897,887
Alabama	18	17	105,795	116,286	222,081	206,855
New York	14	14	82,626	118,529	201,155	191,666
Illinois	19	19	129,277	250,168	379,445	340,842
Colorado	3	3				
Indiana	16	16				
Maryland	6	5	10,826	466,118	476,944	413,312
Virginia	1	1				
Wisconsin	0	4				
Kentucky	1	1				
Massachusetts	1	1				
Tennessee	1	1	28,578	63,528	92,106	82,724
Utah	1	1				
West Virginia	2	2				
Michigan	4	4				
Minnesota	2	2				
Missouri	0	0	36,400	47,846	84,246	80,572
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states		....	8,493	26,094	34,587	27,376
Total	196	186	606,057	2,602,224	3,208,281	2,898,668



High Auto Production Rates Holding into April

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Ford, at 2000 Daily, Squaring Away for Long Pull

DETROIT, April 3

FEW Aprils have opened more auspiciously for the automotive industry, giving seasonal factors their due, but to concede it is not done. Here as in most other industrial centers a knowing reservation is more fashionable than frank optimism.

At this time only one major producer is slowing up and that is Oakland, which is making some changes in its assembly. Other makers are at least maintaining their March rates or expanding. The Ford Motor Co. slowly but surely is emerging from the shadow. Neither Chevrolet nor Whippet, both still at top speed, is expected to suffer this month from Ford. Dodge Brothers, Graham-Paige and Reo are receiving impetus from new models.

For three successive months production has increased. That April may make it four is quite possible. From shipping instructions for pig iron and specifications for full-finished sheets for April delivery the outlook is clear. The weasel words that dim some appraisals of the situation are that each passing week sees the end of the spring upswing that much nearer and the industry is on such short rations that almost overnight material suppliers could be cut off.

* * *

SPECULATION over Ford operations will not down. It can be stated definitely that up to the middle of last week the daily rate of assembly at all plants was 1400-1600. The middle of the week the Memphis, Buffalo and St. Louis assembly plants came in and beginning this week the daily rate is 2000. By the end of April a gait of 3000 daily is scheduled and about June 1 the pace is expected to reach 5000.

In addition to Memphis, Buffalo and St. Louis, the plants now operating include San Francisco, Chicago, Louisville, Ky., St. Paul-Minneapolis, Seattle, Kansas City, Mo., Kearny, N. J., Norfolk, Va., Chester, Pa., Dallas, Tex., and Somerville, Mass.

Two further indications that all experimental work on Model A has been concluded and that the Ford organization is set to go ahead are the departure of Mr. Ford for Europe last Saturday and the closing of contracts with outside interests such as Kelsey Wheel and Budd Manufacturing for parts not requiring the highly-specialized equipment devised for the new welding, forging and stamping operations. It is understood that some replacement parts for Model T as well as units for the new Model A have been farmed out. There is speculation that it will be Jan. 1 before the Ford Motor Co. will be entirely self-contained on its parts.

* * *

UNQUESTIONABLY it is the long pull that the Ford organization is planning for. No other automotive interest, not even excepting General Motors, could be so painstaking and sure but deliberate in swinging into production on a new model. But once Model A's are rolling on to the highways and the merit of their all-steel construction is discerned the Ford organization believes that not alone Chevrolet and Whippet but every car priced at $1000 or less will feel the competition. Once the assembly line has regained the old Model T stride it is believed that the pace can be maintained regardless of general business conditions. Ford is closing Wednesday or Thursday of this week on its iron ore requirements for the 1928 shipping season and is to place a tonnage considerable in excess of any previous early purchase.

Some have figured that with 95,000 men on the pay roll and with $6 a day as a conservative average the Ford daily wage bill approximates $450,000. At 1500 cars a day this reveals an average labor cost per completed car of $300, to say nothing of material and overhead. Of course, the same 95,000 men will turn out several times 1500 cars daily once special equipment for a production run is lined up. Meanwhile, it is back-fence gossip that General Motors is netting an average profit of $117 on every Chevrolet being sold.

* * *

AUTOMOTIVE buyers will not pay as much for their second quarter finished steel as steel producers would like, but they will pay more than in the first quarter. On plates, shapes, bars and wire products most invoices will be about $1 per ton higher and on strip and sheets $2 to $3 a ton. These advances have come grudgingly, but nevertheless they have come.

It is the firm stand of producers in regard to extras that is causing the most pain. On many hot rolled flat products new extra lists announced at the end of the fourth quarter and

through the first quarter are now being made effective. In the case of alloy steel, for example, the extra for annealing has been advanced from $15 per ton to $20, the etching test on billets is now $5 per ton, heat treating is now $1.50 per ton while the guarantee of cold shearing on forging bars is a flat $20 per ton. An extreme case developed recently when one maker of alloy steel quoted an increase of $23 per ton in the extras on one lot.

The mills are stressing the point that the extras represent not profit but a remuneration for a definite additional service or processing and hence while the base prices may fluctuate extras should be held sacred.

* * *

THE iron and steel scrap market continues literally bowed down under the weight of the heavy tonnages that have been coming out. In direct relation to automotive production, scrap offerings have been increasing each month. Because of the weak market at Pittsburgh and other eastern points much blast furnace material has been moving to the Chicago district recently.

One grade—compressed sheets—is a conspicuous exception to the downward trend in prices. When a West Virginia steelmaker recently saw that a new high record was possible for March, it came into the Detroit market and took out 5000 tons of bundles, paying $11 per ton or a slight premium for shipment in two weeks.

* * *

IN NO other consuming district are steel accounts believed to be so large, and barring some shifting that shopping for lower prices necessitates as a face-saving proposition, established producers can count on their share. What is thought to be the best connection in this district from the standpoint of tonnage is a forging subsidiary of General Motors which is now taking 1000 tons a day of forging bars and billets.

Trackwork Shows Gain

Shipments of tee rail trackwork in February totaled 11,371 net tons against 9332 tons in January, according to figures compiled by the American Iron and Steel institute. Revised figures for 1927 were 160,631 tons, as compared with 197,005 tons in the year preceding.

Interstate commerce commission has found unreasonable freight rates on cast iron soil pipe and fittings in carloads from Somerville, N. J., and certain points in Pennsylvania to New England destinations.

Mechanization

Development Will Proceed, Says Secretary of Labor

Washington, April 3.—That the department of labor had "sounded warning" in ample time of the approach of unemployment and the need for inaugurating a public building program was brought out in the recent report by Secretary Davis to the senate. Responding to the senate's resolution that accurate statistics on unemployment be compiled, the secretary stated that an appropriation of $120,000 would be necessary for the work, and he asked for that sum.

"The factors which have brought about present unemployment," the secretary said, "are the floods in the Mississippi Valley, in New England; the tornado which swept Florida and its attendant losses, the temporary closing of certain industrial plants, and a disturbance in the bituminous coal fields which has lasted for many months. All these have temporarily decreased the opportunities for employment, and have adversely affected employment conditions in other lines of industry.

"The number at present unemployed has been found to constitute a very small percentage of those at work. The census of 1920 showed that 42,000,000 of our people as wage earners or otherwise are gainfully employed. Of these, 23,348,692 have been found to be at present employed on either a wage or a salary basis. By the most careful computation methods available, Commissioner of Labor Statistics Stewart finds that the actual number now out of work is 1,874,050.

"The best estimate that can be made from all sources of information available at this time is that the shrinkage in the volume of wage earners, including manufacturing, transportation, mining, agriculture, trade, clerical and domestic groups, figuring on a basis of those employed in 1925, is revealed to be 7.43 per cent. Applying this percentage to the total number of employes as of 1925, gives a shrinkage between the average of 1925 and January, 1928, of 1,874,050 persons."

Commissioner Stewart divided unemployment into two classes, those temporarily out of work at their regular occupations, the chief cause of former labor depressions, and those displaced by changes in industrial and commercial methods. Prompt relief for the first class may be afforded by the government's building program, and from similar programs of states, municipalities and counties. Referring to the latter cause, secretary Davis said constant reports come to the department outlining the introduction of new labor-saving machines and indicating "this mechanical development will probably proceed as rapidly in the immediate future as in the past."

Pipe Price in East Turns Up After Big Dip

New York, April 3.—After dipping to the lowest point in years, cast pipe prices here are showing a more pronounced tendency upward. With spring buying finally getting under way after a slow start, sellers are hopeful that a further improvement will follow.

Prices still have far to go in recovering ground lost within the past 12 months. Even at its recently advanced range of $37.75, to $38.20, it is still $11 or $12 below the market a year ago, since which time the usual differential of $2 or so over the Birmingham base—plus, of course, the difference in freight—has not only been eliminated but in recent weeks also has been supplanted by a differential under the southern market, a differential which still prevails.

Certain of the recent weakness has been attributed to the importation of foreign pig iron. One large maker, as reported at the time, recently brought in the first of a lot of 30,000 tons at 50 cents to 75 cents under the domestic market, and upon several occasions has cut wide swaths in the pipe market. However, so far as known, this pipemaker is the only one in this district now importing pig iron, and as for the cutting of wide swaths, this interest has been known to act similarly under apparently less favorable cost conditions.

Fundamentally, it is claimed, the condition here still reflects such dominating factors as sharply increased capacity throughout the country and what might be termed a competition for leadership among processes of pipe making; also the general downward trend in demand over the past number of months. This downward tendency continued unabated in the East throughout the greater part of the first quarter, with buying substantially under that of a year ago. In the instance of New York and one or two other larger cities buying was heavier, but this until of late was an exception to the general trend.

January net operating income of Class I railroads was $57,070,898 or 3.68 per cent on their property investment.

Obituaries

CHARLES S. SMITH, 67, for many years vice president of the A. O. Smith Corp., Milwaukee, manufacturer of pressed steel automobile frames, oil pipe line material, cracking stills, etc., died March 28 in Bermuda. He was a brother of the late A. O. Smith, founder of the corporation and an uncle of L. Ray Smith, now president. The original organization, C. J. Smith & Sons, manufactured parts for the bicycle industry. Mr. Smith also was an active member and consultant in the Badger Meter Mfg. Co., Milwaukee.

* * *

Bruce P. Owens, 45, vice president of the O'Malley-Beare Valve Co., Chicago, died March 31, at Evanston, Ill.

* * *

George G. Voland, 49, president of Voland & Son Balance & Scale Mfg. Co., New Rochelle, N. Y., died March 26 at his home in that city.

* * *

August Swanson, for many years superintendent of the plant of the Astoria Iron Works, now the Continental Can Co., Seattle, died at his home there March 25.

* * *

Harry L. Bell, 70, for many years foundry superintendent of Dodge Mfg. Corp., Mishawaka, Ind., and an expert metallurgist, died at his home on Bass Island, near Knox, Ind., recently.

* * *

John Jewell, 60, treasurer of the Reeves Pulley Co., Columbus, Ind., died recently. Following his graduation from grammar school in 1887, he was employed by the Reeves company and remained with the organization since. Three years ago he was made its treasurer.

* * *

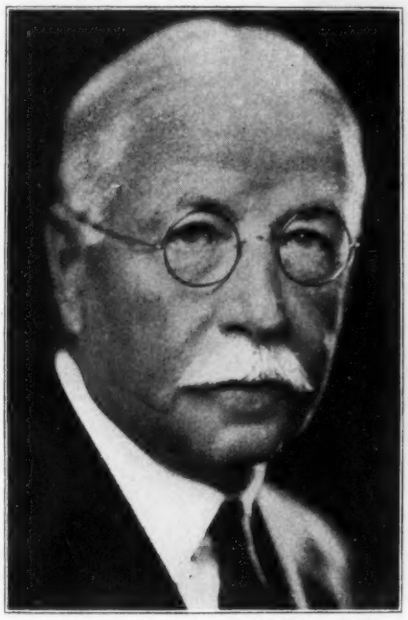
Addison B. Clemence, 70, former consulting chemist at the Worcester, Mass., works of the American Steel & Wire Co., Cleveland, died at his home at Worcester, last week. He was a graduate of the Worcester Polytechnical institute and retired from active service with the wire plant two years ago.

* * *

Robert P. Plunkett, 35, salesman in charge of the northern New Jersey territory for the Bethlehem Steel Co., Bethlehem, Pa., and attached to that company's New York office, died at his home in Morristown, N. J., March 30. He learned the steel business in the mills at Bethlehem and for a time was attached to the Bethlehem sales office in Mexico City, Mexico.

* * *

William Blackwood Smith, president, Smith & Caffrey Co., Syracuse, N. Y., steel fabricator and founder, died March 24 at his home in that city. Mr. Smith was born in Williamatic, Conn., June 22, 1860. He started his business career in 1880 with the E. C. Stearns Co., as salesman, and after a number of years decided to enter business for himself. In 1893 he formed a partnership with James S. Caffrey founding Smith & Caffrey. Besides his connection with the structural steel industry, Mr. Smith was known as a foundry expert. At the time of his death he was the owner of his company, as Mr. Caffrey retired six years ago. Mr. Smith was much interested in the civic and charitable projects of Syracuse and gave much of his time to philanthropic work.



WILLIAM BLACKWOOD SMITH

* * *

David H. Darrin, president of the Automatic Switch Co., New York, died March 30 at his home in New Rochelle, N. Y., after an illness of several months. He was one of the oldest members of the American Society of Mechanical Engineers and was a life member of that organization. He was a member of the Engineers' club of New York.

* * *

William H. Morgan, 61, president of the Morgan Engineering Co., Alliance, O., builder of cranes, presses and other machinery and structural shape fabricator, died at Baltimore March 29. Col. Morgan, one of the industrial leaders of Ohio, was for 30 years, head of the company bearing his name. His father Thomas P. Morgan Sr. founded the Engineering company. Col. Morgan was born at Pittston, Pa., and was a graduate of Mt. Union college, Alliance. Upon the death of his father in 1897, Col. Morgan became president of the company.

* * *

James A. Carr, 72, retired manufacturer of seeding machinery and widely known in industrial circles throughout the Middle West, died at his home at Richmond, Ind., recently. He became connected with the Hoosier Drill Co. in Dublin, Ind., in 1877. The company moved to Richmond and when the Richmond and four other plants were merged into the American Seeding Machinery Co. in 1903, he became vice president and later president. He remained in that capacity until 1920 when the Hoosier Drill unit was sold to the International Harvester Co. He then retired from active business. In recognition of his service during the war the French government made him a chevalier of the Legion of Honor and Italy conferred on him the decoration of officer of the order of Saints Maurizioe Lazaro.

* * *

George E. Titcomb, vice president, McMyler-Interstate Co., Bedford, O., manufacturer of coal and ore-handling machinery, cranes, car dumpers, etc., died April 1. His early career was with the Link-Belt Co., Chicago, where he became chief engineer. Later he was associated with the McMyler company, as eastern sales manager at New York, and in 1925 was elected vice president. Mr. Titcomb in 1923 made extensive studies of coal-handling equipment and of port and terminal cranes in the leading cities of Europe. He was a member of the American Society of Mechanical Engineers, Union League club, Philadelphia and Machinery club, New York.

Industrial Men in the Day's News

F. A. Melmoth, Author of British Foundrymen's Exchange Paper

THROUGH diligent research and practical experience in steel foundry production in British companies he has an enviable background from which he writes accurately and authoritatively.

OBTAINING his education in Sheffield university as a night student, his efforts were rewarded by having conferred upon him the Mappin medal in metallurgy.

A LOVER of outdoor life, he obtains his recreation and diversion working in the gardens he has maintained or playing golf.

SELECTION by the council of the Institute of British Foundrymen to present the 1928 institute exchange paper at the American Foundrymen's association meeting in Philadelphia, May 14-18, has added another honor to the already enviable record of F. A. Melmoth. Now the manager of the steel foundry of Thomas Firth & Sons Ltd., Sheffield, England, he has spent many years in research as well as having extensive practical production experience. His paper is titled "Variables in Steel Foundry Practice."

A formal agreement between the American Foundrymen's association and the Institute of British Foundrymen was entered into in 1920, establishing the exchange papers, and the first paper was presented before the American association by F. J. Cook, a past president of the British institute, in 1922. Subsequent papers have been presented by Percy Longmuir, past director of the British Cast Iron Research association, in 1923; Wesley Lambert, J. Stone & Co. Ltd., in 1924; J. E. Fletcher, consultant, British Cast Iron Research association, in 1925; John Shaw, past president, Institute of British Foundrymen, in 1926, and J. H. Andrew, Royal Technical college, Glasgow, Scotland, in 1927.

Mr. Melmoth was born at Kelnhurst, near Sheffield, in 1891. His technical education was obtained at the faculty of technology, Sheffield university, where he attended as a night student. He was awarded at the completion of his course the degree of associate of metallurgy. The highest award of the metallurgical faculty, the Mappin medal in metallurgy, was conferred upon Mr. Melmoth in 1913.

His first employment was in the research laboratory of Brown Bayleys Steel Works Ltd., Sheffield. In 1916 he was appointed foundry manager of the National Steam Car Co., Chelmsford, Essex, and later he became the foundry manager of the Braintree Casting Co., a division of Lake & Elliott Ltd., Braintree, Essex. He retained this position until the end of 1925. For several years during his connection with Lake & Elliott he was consultant to the National Steel Foundry Ltd. of Scotland. Following this work, he was given full charge of the plant of Lake & Elliott, where he gained much experience in the executive direction of the production of steel, malleable and gray iron castings.

In 1926 Mr. Melmoth was appointed to the position he now holds with Thomas Firth & Sons Ltd. Through the years he has spent in the foundry industry both in research and actual production management, Mr. Melmoth has acquired a meritorious background, enabling him to write accurately and authoritatively on the subject of his exchange paper.

For his hours of recreation he enjoys outdoor life, and following his day's labor finds relaxation and enjoyment in the gardens he maintains at his home. Golf has been a recent addition to his outdoor pleasures.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

EDWARD E. MARBAKER has been appointed Whiting Corp. fellow at the Mellon Institute of Industrial Research, Pittsburgh, following the establishment of this fellowship by the Whiting Corp., Harvey, Ill., for the purpose of carrying on investigations on cast iron. Dr. Marbaker was graduated from Towne scientific school of the University of Pennsylvania, Philadelphia, in 1910, receiving a degree of doctor of philosophy in 1914 from the graduate school. He became associated with the Westinghouse Lamp Co., where he carried on investigations of the platinum metals, and shortly after receiving his doctor's degree he became chief chemist in charge of the metallurgical laboratory, spending considerable time in argon research. Leaving the Westinghouse company in 1917, Dr. Marbaker became associated with Alexander Bros., manufacturers of leather belting, first as chief chemist, and later as chief engineer. He was made chief chemist for the Cleveland wire division of the National Lamp Works of General Electric Co. in 1920. Since 1921, Dr. Marbaker has been a fellow of the Mellon institute, conducting chemical and metallurgical research work. He is a member of Sigma Xi, American Chemical society, American Institute of Chemical Engineers, American Foundrymen's association and other scientific organizations.

* * *

John R. Davis, for many years vice president and a director of the Moore Push Pin Co., Philadelphia, has been elected president, succeeding the late William Percy Mills.

* * *

Alfred D. Guion, formerly advertising manager of the Bridgeport Brass Co., Bridgeport, Conn., has organized Alfred D. Guion & Co., advertising agency, of which he is the president.

* * *

Justin G. Smeby has been appointed welding engineer at the South Philadelphia, Pa., works of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. After his graduation from the University of North Dakota, Grank Forks, N. D., with a degree in mechanical engineering, he entered the South Philadelphia plant as an apprentice and was transferred later to the tool division. In 1925 he went into the turbine engineering department, where he has been until his recent appointment.

* * *

Stanley P. Benton has been elected president of E. D. Jones & Sons Co., Pittsfield, Mass., manufacturer of paper making machinery, succeeding

EDWARD E. MARBAKER

Edward A. Jones, whose death was announced in IRON TRADE REVIEW, March 8.

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A. C. Lehman, president of the Blaw-Knox Co., Pittsburgh, steel products manufacturer, has sailed for a two-month tour of Europe.

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John S. Krauss, vice president and general manager in charge of sales and advertising of the L. H. Gilmer Co., Philadelphia, manufacturer of belting, has been elected president, succeeding L. H. Gilmer, founder of the company, who has been elected chairman.

* * *

M. C. Cosgray, general manager of the Matthews Engineering Co., Sandusky, O., has become associated with the E. A. Lundy Co., Connellsville, Pa., which has taken over the emergency railroad, industrial and marine lighting plant divisions of the Matthews company. He will locate in Pittsburgh, where the Lundy company has its main offices.

* * *

W. H. Norrington has been appointed New York representatative of C. O. Bartlett & Snow Co., Cleveland, designer and builder of material handling and processing equipment. He is a graduate of the University of Michigan, Ann Arbor, Mich. He had been general sales manager of the Robins Conveying Belt Co. until his recent affiliation.

* * *

Wilfred H. Cunningham, president and chairman of the board of the Lake Superior Corp., Sault Ste. Marie, has resigned both offices.

Robert Dodd, of Montreal, Que., has been appointed to succeed him. Mr. Cunningham will remain a vice president and director.

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Charles E. Beardsley, president of Beardsley & Wolcott Mfg. Co., has been elected president of the Bridgeport Brass Co., Bridgeport, Conn. George T. Wigmore has been elected secretary. New directors include Ralph E. Day, Paul D. Hamilton, Rowley Phillips and the secretary.

* * *

Colin Campbell has been apointed vice president in charge of sales of Willys-Overland Inc., Toledo, O. George M. Graham, formerly with the Pierce-Arrow and Chandler motor companies, has been made vice president, to be associated with the president. L. A. Miller has been named first vice president.

* * *

Charles M. Schwab, chairman of Bethlehem Steel Corp., Bethlehem, Pa., will sail April 25 for London, Eng., where the Bessemer medal will be presented to him May 5. He will be the first American to receive this medal which was first awarded in 1860 by Sir Henry Bessemer. The trip will make Mr. Schwab's seventy-eighth crossing of the Atlantic.

* * *

Wallace McCausland, Pittsburgh, district sales manager of the Reading Steel Casting Co., Bridgeport, Conn., has been transferred to the general

sales office of the company, at Bridgeport to become assistant to the general manager of sales.

A. W. Taggart, for the past three years Chicago district sales manager for the Reading company, has been transferred to the Pittsburgh district, to become district sales manager there.

Walter E. Foster, sales engineer at the Bridgeport office of the Reading company, has been made Chicago district sales manager.

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David H. Preston has become assistant general sales manager of the Excello Tool & Mfg. Co., Detroit.

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George A. Renard, who on March 15 succeeded W. L. Chandler as secretary-treasurer of the National Asso-

GEORGE A. RENARD

ciation of Purchasing Agents, with offices in New York, was at the time of his election purchasing agent, production manager and a member of the board of directors of the St. Louis Screw Co., St. Louis. He has been a national director of the association and now is chairman of the national committee on monthly meetings. Born in East St. Louis, Ill., in 1888, Mr. Renard is a graduate of the University of Illinois law school, Champaign, Ill., being admitted to the bar of Illinois in 1910. He practiced law for a time and in 1912 joined the St. Louis Screw Co. to learn production methods and processes.

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J. B. Siegfried, general sales manager and director of the Motor Wheel Corp., Lansing, Mich., has been elected vice president in charge of sales. D. L. Porter, vice president, has been made treasurer, in addition, succeeding B. S. Gier who resigned recently.

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S. M. Hathaway is manager for the branch office recently opened in Cleveland by the Detroit Steel Products Co., Detroit, manufacturer of steel window frames. The Cleveland office is at 1740 East Twelfth street.

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William H. Woodin, chairman of the American Locomotive Co., and American Car & Foundry Co., New York, has been elected a director of the American Surety Co.

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A. L. Humphrey, president of the Westinghouse Air Brake Co., Wilmerding, Pa., and the Union Switch & Signal Co., Swissvale, Pa., has been elected a director of the Union Trust Co. of Pittsburgh.

* * *

T. E. McLaughlin has been appointed superintendent of the Youngstown, O., plant of the Truscon Steel Co., that city, succeeding Albert Senf, who has been made manager of the company's new property at Los Angeles.

* * *

C. Irving Dwinnell has been appointed manager of the Boston office of United States Electrical Tool Co., Cincinnati. Mr. Dwinnell is a graduate of Tufts college, Boston, and has been with the General Electric Co. plant at Lynn, Mass., and Schenectady, N. Y., as electrical engineer.

* * *

William O. Lange has been elected secretary of the Phoenix Iron Co., Philadelphia, succeeding the late George Gerry White, who had filled the office for 58 years. Mr. Lange has been with the Phoenix company for more than 23 years, during the past two years as general manager of sales.

* * *

D. C. Smith, advertising manager of the Northfield Co., Sheboygan, Wis., furniture manufacturer, has been appointed advertising manager of the Milwaukee Corrugating Co., Milwaukee, manufacturer of metal building materials, succeeding H. P. Sigwalt. whose resignation was announced in IRON TRADE REVIEW, March 29.

* * *

H. L. McCauley, assistant district sales manager of the Milwaukee office of Inland Steel Co., Chicago, has been appointed district sales manager, succeeding C. M. Easterly who resigned recently. Mr. McCauley had been in the order department of the Inland company at Chicago, before going to the Milwaukee branch. Prior to that time he was associated with the American Sheet & Tin Plate Co. at Gary, Ind., Pittsburgh, and Saltsburgh, Pa.

M. E. Gregg, assistant district sales manager at the St. Paul office of the Inland company, will succeed Mr. McCauley at Milwaukee. Previous connections of Mr. Gregg include Bethlehem Steel Co., Lackawanna Steel Co., Republic Steel Co. and the Basset-Presley Co.

Porcelain Fixture Sizes To Be Cut Down

Washington, April 3.—A general conference of manufacturers, distributors, and users of staple porcelain plumbing fixtures will be held May 22 to consider a proposed commercial standard. A report has been received by R. M. Hudson, assistant director of the commercial standards group of the bureau of standards, from the advisory committee of this commodity to the effect that the industry believes that 87 of the present 622 varieties will be sufficient for the regular stock.

HARVEY NATHANIEL DAVIS

Newly elected president of Stevens Institute of Technology, Hoboken, N. J., as announced in Iron Trade Review, March 15

Tariff Reports In

Washington, April 3.—The advisory board of the federal tariff commission has received preliminary reports on cast iron pipe and tungsten from commission experts gathering data in response to requests for higher rates. No action has been taken on either the fluorspar or manganese ore surveys now in process.

Americans Buying in Europe

Orders Placed for Steel Bars and Reinforcing Material—Southern American Users Purchasing Steel Castings and Galvanized Sheets—British Markets Spotted —European Rail Syndicate Reaffirms Price of Rails

IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1
European Headquarters,

LONDON, April 3.—(*By Radio*)—Conditions in the British iron and steel market are spotted. Demand for northwest coast pig iron is improving. Steelworks are mainly busy on shipplate and railroad material. South American and Indian buyers are giving work to the American and Indian buyers are giving work to the British steel foundries.

Considerable competition is encountered from German mills for wrought iron tube. A new pure grade of pig iron made in Germany is being sold for the manufacture of horseshoes. Inquiries for galvanized sheets for delivery to South America are steady. Demand from Costa Rica is especially good. Improvement is noted in the tin plate market.

Berlin reports increasing demand for wire for export. Belgian mills have received orders from American consumers for steel bars and concrete reinforcing sections. The Far East is inquiring for sheets.

A report from Paris states the iron and steel markets generally are satisfactory. Pig iron export prices are firm. The European rail syndicate met in Paris and decided to maintain the price basis at £6 7s 6d ($30.91).

British Steel Prospects Steadily Brighter

LONDON, March 16.—(*European Staff Service*)—Reports from the continent indicate that iron and steel export prices may fall off by the end of the month. Although many works in France and Belgium are well booked with orders, there has been a disposition on the part of some concerns to solicit orders. The abstention of British buyers, due to the higher price level, also is beginning to make itself felt. Finally, German competition in export business is becoming more noticeable, while it is expected the French domestic demand may fall off during the election period which will become active from the beginning of April. On the other hand, it is not expected prices will reach the low levels prevailing last summer, because certain factors of production costs such as transportation rates and taxes have increased.

Business prospects in Great Britain are brighter. Whereas incursions of foreign pig iron now are greatly reduced, British producers are shipping fair tonnages to France and Germany, both of foundry and hematite pig iron. The situation has sufficiently improved to enable Middlesbrough makers to raise their price by 1s ($0.24) per ton. The f. o. b. price of foundry iron, 2.3 per cent silicon, being about £3 5s ($15.75) for continental as well as British, there is no advantage to the British user in ordering from the other side. In the steel market demand for domestic semi-finished products is strengthening in Great Britain, as the difference between British and continental prices is within narrower limits and the British works offer prompt delivery. Continental billets are quoted at £5 15s ($27.85) delivered Birmingham, as against £6 ($29.10) for British steel. However, there still are large stocks of continental billets in British warehouses, which can be obtained advantageously. Export demand for

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, April 2	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.10	3 6 0*	$15.62	3 4 0	$15.62	3 4 0	$15.62	3 4 0
Basic	.....	.....	14.64	3 0 0	14.64	3 0 0	15.37	3 3 0
Basic-bessemer	17.08	3 10 0†	14.64	3 0 0	14.64	3 0 0	14.64	3 0 0
Hematite, Phosphorus 0.02-0.05	17.08	3 10 0	22.16	562.5*	.....	.....	17.08	3 10 0
SEMIFINISHED STEEL								
Billets	$28.06	5 15 0	$22.33	4 11 6	$22.33	4 11 6	$22.69	4 13 0
Wire rods	47.58	9 15 0	28.06	5 15 0	28.06	5 15 0	28.06	5 15 0
FINISHED STEEL								
Standard rails	$37.82	7 15 0	$31.11	6 7 6	$31.11	6 7 6	$31.11	6 7 6
Merchant bars	1.58c	7 5 0	1.16c	5 5 0	1.16c	5 5 0	1.18c	5 7 0
Structural shapes	1.61c	7 7 6	1.03c	4 13 6	1.03c	4 13 6	1.02c	4 13 0
Plates, ship, bridge and tank	1.77c	8 2 6	1.36c	6 4 0	1.36c	6 4 0	1.38c	6 5 0
Sheets, black, 24 gage	2.40c	11 0 0	2.31c	10 10 0	2.31c	10 10 0	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	2.89c	13 5 0	3.30c	15 0 0	3.25c	14 15 0	3.74c	17 0 0
Bands and strips	2.29c	10 10 0	1.32c	6 0 0	1.32c	6 0 0	1.40c	6 7 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.57c	7 3 0
Galvanized wire, base	2.94c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.01c	9 3 0
Wire nails, base	2.51c	11 10 0	1.62c	7 7 6	1.62c	7 7 6	1.67c	7 12 0
Tin plate, base box 108 pounds	$4.45	0 18 3	.....	.....	.....	...	$ 6.83	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.10	3 6 0	$17.53	445(2)	$16.46	590	$18.66	78
Basic pig iron	.....	.....	18.91	480(1)	14.93	535	21.05	88
Furnace coke	2.93	0 12 0	5.91	150	5.16	185	5.14	21.50
Billets	28.06	5 15 0	21.87	555	23.72	850	27.51	115
Standard rails	1.74c	8 0 0	1.36c	755	1.43c	1,100	1.51c	140
Merchant bars	1.63c	7 10 0	1.22c	675	1.23c	945	1.48c	137
Shapes	1.72c	7 17 6	1.17c	650	1.17c	900	1.45c	134
Plates, ship, bridge and tank	1.88c	8 12 6‡	1.42c	790	1.57c	1,210	1.65c	153
Sheets, black, 24 gage	2.51c	11 10 0	2.74c	1,520	2.50c	1,925	2.38c	220
Sheets, galvanized 24 gage, corrugated	2.89c	13 5 0	3.42c	1,900	3.80c	2,925	3.78c	350
Plain wire	2.12c	9 15 0	1.71c	950	1.82c	1,400	2.32c	215
Bands and Strips	2.29c	10 10 0	1.40c	780	1.59c	1,220	1.71c	158

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.93) f. o. b. Ferromanganese £20 10s 0d ($100.04) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s Od ($73.20) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

finished steel has been spasmodic, and although most of the important overseas markets have been inquiring, the volume of orders has been small. Recently the South Durham Steel & Iron Co. Ltd. obtained an order for steel pipes for the Buenos Ayres waterworks and the Rand Water Board. Bolckow Vaughan & Co., Ltd., have sold 100,000 pressed steel sleepers to the Nigerian railroad. Hadfields, Ltd., has obtained a contract for a cast steel framed stone breaker with a capacity of 100 to 120 tons an hour for New Zealand. Interesting contracts for locomotives and cars have been passed to British firms by the railroads of New Zealand, Argentine, and South Africa.

In Belgium a wage increase of 2½ per cent has been decided upon by the mixed commission, to affect all the iron and steel trades. In the export markets certain producers are beginning to grant slight concessions, but the market on the whole is healthy. Export demand for pig iron is satisfactory. In semifinished steel sheet bars are quoted for export at about £4 14s 6d ($22.90), but the Germans are offering at £4 13s ($22.50). Steel bars are about £5 7s ($25.85). The plate and sheet market is active and demand for plates from Holland continues good. New French import duties have been approved by parliament.

The new minimum tariff rates for certain iron and steel products are as follows: Forge and foundry pig iron, 51 francs ($2) per metric ton; cold-rolled strip, 240 to 360 francs ($9.40 to $14.15), according to thickness; plates and sheets, 172.50 to 288 francs ($6.80 to $11.35), according to gage. French iron and steel export business is quiet.

In Germany the government has made binding the wage arbitration award for the Berlin metal workers, and work is being resumed. It is reported that several orders for construction of factories have been placed by the King of Afghanistan during his visit. German works now are taking more interest in export business, especially in bars and shapes.

French Market Showing Lassitude

Office of IRON TRADE REVIEW,
9 Rue de Londres

Franc 2.78c

PARIS, March 16.—(*European Staff Service*)—The French iron and steel market continues firm, but shows signs of lassitude, and it is generally asumed that prices now have reached their maximum. There also is less support from export markets, as shown by the small volume of transactions at the Brussels exchange, and several works now are coming back for orders. It is expected that by the end of the month prices may drop to a lower level, especially as British buyers have been holding off since present quotations have prevailed. However, most French works are well booked and deliveries generally are extended over three or four months.

The council of the European steel entente met in Paris March 8 and 9, and decided to maintain the production quota of the members at its previous rate, which is based on an annual production of 29,287,000 metric tons for Germany, France, Belgium, Luxemburg, and the Saar. The inclusion of Poland in the entente was discussed, but it was impossible to bring together the viewpoints of the Polish representatives and those of the entente. However, it is hoped an agreement will be reached by the next meeting. A concession was granted to the central European members which had produced in excess of their quota during the last quarter of 1927, and the penalty which they incurred was reduced from $4 to $2 per ton. On the other hand, their request to have their quota increased was refused.

The situation in the French collieries still is unsatisfactory and it is possible that prices will be further readjusted. The government is endeavoring to support the industry, and reductions in transportation rates have been granted. In pig iron, especially in hematite, British competition now is noted. French foundries are well occupied, and a number are complaining they cannot obtain sufficient metal to meet requirements. In the domestic steel market the recent advance in bars and structural steels seems to be maintained with some difficulty. A slight reduction is expected soon, especially as it is anticipated that the election campaign will result in a lull in business activities.

It is practically impossible to obtain any semifinished products on the open market, and the situation has reached such a point that some rollers are faced with the necessity of closing down. This is due to the large volume of orders for finished steel products since the end of last year and which has absorbed all stocks. Merchant bars now are quoted at 680 to 700 francs ($26.50 to $26.80) per metric ton. The prices of semifinished products and beams are those fixed by the comptoir. Plates are sold at 770 to 780 francs ($29.50 to $29.95), medium-sized sheets at 820 francs ($31.40), and lighter gages at 1050 to 1150 francs ($40.25 to $44). Wire rods are active and the price fixed by the comptoir is being maintained.

Labor Unrest Threatens German Steel

BERLIN, March 16.—(*European Staff Service*)—The feature of the German iron and steel market during past weeks has been the danger of a lockout in the German metal-consuming industry. According to anticipations, this danger has been overcome by the labor minister pronouncing the official award binding. Nevertheless, more than 200 wage agreements will become due during the next month, and unsettled conditions may arise therefrom, although it is anticipated that most of these difficulties will be settled in the same manner as for the previous conflict. At present a strike of Berlin tool makers is holding up occupation in many other branches in this district. With regard to the conflict between the steelmasters and the minister of economic affairs, it now is declared that on the basis of satisfactory negotiations the minister has withdrawn his order that the steel industry should communicate to him all decisions regarding changes in prices prior to their becoming effective. On this occasion it was stated that the steelmakers intend to adapt their prices in order that the wide margin between domestic and export quotations should be reduced.

In the meantime occupation of German rolling mills continues satisfactory. In January, 1928, 1,089,268 metric tons of rolled products were made, compared with 1,085,244 tons in December, 1927. As a matter of fact, the plants of the United Steel Works Co. are operating at about full capacity, the company producing more than 40 per cent of the entire German steel output. It is becoming apparent that a turn of the tide in the iron and steel trades now seems to be on the way. For several months, about 80 per cent of the sales was effected in the domestic market. Now domestic business is declining in favor of export sales. The advancing world market prices are more attractive to German producers than for some time, and demand from foreign markets has substantially revived. Increasing tonnages of semifinished products have been shipped to Great Britain, and heavy tonnages of railroad track material have been sold. Merchant bars have been sold overseas at increasing prices. The pipe department is unattractive, as the American and British producers are offering lower prices. The Dutch East Indies and the Far East have shown interest in wire and bands, and Japan also has been in the market. The following table shows the development of German imports and exports in recent months, in metric tons:

1927	Imports	Exports
Sept.	268,523	357,924
Oct.	298,557	352,734
Nov.	296,013	336,485
Dec.	231,911	352,472
Jan., 1927	188,217	514,823
Jan., 1928	262,392	363,026

Contrary to expectation, pig iron prices have not been raised. Domestic sales have declined, whereas foreign shipments have slightly improved, but quotations do not tempt.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

DOMINION STEEL & COAL CORP. LTD. is the name proposed for the reorganization of the British Empire Steel Corp., Montreal, Que. A bill has been prepared for introduction in the Nova Scotia legislature to give effect to the reorganization plan. Incorporators are to be Sir Herbert Holt, J. H. Gundy, George A. Montgomery, K. C., and C. B. McNaught. Capital is placed at $65,000,000, consisting of 1,000,000 class A shares at $40 each and 1,000,000 class B shares at $25 each. It is planned to do away with holding companies and consolidate the greater part of the operations of the company, its constituents and their subsidiaries, in one operating company. The reduction in capital is drastic, from $230,000,000 actually issued, of which about $105,000,000 is in the hands of the public. The bill authorizes the company to acquire all or any part of the assets of the British Empire Steel Corp. and its constituents and subsidiaries.

* * *

DETROIT RANGE BOILER & STEEL BARREL CO., Toledo, O., has moved from 375 Phillips avenue to 454 Earl street.

* * *

ORE AND COAL EXCHANGE, Cleveland, has moved its offices from the Perry Payne building to 1101 Terminal Tower building.

* * *

ARCA REGULATORS INC., New York, manufacturer of regulators for gas works, coke oven plants, power and similar uses, has moved its offices to 11 Park place.

* * *

WELLAND STEEL CASTINGS LTD., Welland, Ont., has installed a heroult-type electric furnace of half-ton capacity for the manufacture of alloy steel castings.

* * *

B F. STURTEVANT CO., Boston, manufacturer of blowers, fans, motors, turbines, etc., has transferred its Cleveland office from 1603 St. Clair avenue, to 445 Penton building, 1213 West Third street.

* * *

MECHANICAL PLATING CO., 616 West Monroe street, Chicago, is building a plant to be devoted to cadmium plating as a rust proofing. The present plant will be continued in operation.

* * *

AMERICAN ROLLING MILL CO. has moved its Chicago district sales office from the Peoples Gas building, 122 South Michigan boulevard, to the Straus building, 310 South Michigan boulevard.

* * *

DAHLSTROM METALLIC DOOR CO., Jamestown, N. Y., has bought plant No. 2 of the Atlas Furniture Co. to allow increased output. Equipment of the plant will be retained by the Atlas company and removed to its main plant.

* * *

STUEBING Cowan Co., Cincinnati, manufacturer of lift truck systems, has appointed Leeds, Tozzer & Co. Inc., New York, distributor to the railroad field. This covers railroads, electric lines and steamship companies.

* * *

WORTHINGTON PUMP & MACHINERY CORP. has moved its executive, export and district sales offices to 2 Park avenue, New York. Other departments had been moved previously to its plant at Harrison, N. J.

* * *

BALSART MFG. CO., 5902 West North avenue, Chicago, recently incorporated to manufacture radio appliances, has elected Joseph Reidener president, W. H. Paynter vice president, L. J. Reidy secretary and treasurer, and W. W. Murray sales manager.

* * *

NATIONAL FLUE CLEANER CO., Groveville, N. J., manufacturer of soot blowers for fire tube boilers, has appointed Naylor-Hickey Corp., 643 Washington boulevard, Chicago, representative in that city and Furnace Improvement Co., 511 Westminster street, Providence, R. I., to represent it in New England.

* * *

PETRICK BROS. INC., 2226 Belmont avenue, Chicago, manufacturer of pumps, sprayers, blowers and display racks, will occupy its new plant at 1938 North Springfield avenue about May 1. Frank J. Petrick is president, Edward S. Petrick vice president and H. D. Wilson secretary.

* * *

HENRY DISSTON & SONS INC., Tacony, Philadelphia, has appointed Robert K. Greaves district sales manager of tool and special steels and metal saws, with offices at 620 East Hancock street. He has been engaged in the tool steel business for 27 years.

* * *

TWENTIETH CENTURY BRASS WORKS, Minneapolis, has moved from 518 Fifth Avenue, South, to 2601 East Hennepin avenue. The firm recently completed a new foundry and machine shop building and is installing equipment for the manufacture of bronze bushings. L. J. Dawson is secretary.

* * *

SOCIETE LORRAINE DES ACIRES DE ROMBAS is building a third blast furnace at Rombas, Moselle, France, under the direction of Emile Hemmer, director of mines and works. Freyn Engineering Co., Chicago, has been retained as consulting engineer, particularly to determine the size and type of furnace best suited to the raw materials available.

* * *

WINNIPEG ELECTRIC CO., Winnipeg, Man., is preparing to develop power at Seven Sisters Falls, on the Winnipeg river. A contract has been obtained from the Manitoba government for delivery of 30,000 horsepower for 30 years. Construction will require 2000 tons of structural steel, 1800 tons of reinforcing steel and 500 tons of iron and steel castings.

* * *

FOUNDATION CO., New York, has bought from the Baltimore & Ohio railroad the Ironton-Ashland Bridge Co. The purchase carries a federal permit for a bridge across the Ohio river two miles east of Ironton, a railroad right of way through the eastern part of the city and to Jackson, O., and real estate along the right of way. A merger is being planned, to include the Belfont Steel & Wire Co. and the Marting Iron & Steel Co., at Ironton, Ashland Steel Co., and Norton Iron Works, at Ashland, Ky.

1927 Steel Rail Output in Sharp Drop

Production of steel rails in 1927 totaled 2,806,390 gross tons and dropped well below the 3,217,649 tons of 1926, according to statistics compiled by the American Iron and Steel institute. This decrease amounted to 411,259 tons, or 12.78 per cent. The 1927 output was but little better than the 2,785,257-ton total of 1925. In the accompanying box is shown the production of rails by processes from 1912 to 1927.

Open-hearth rails constituted 96.84 per cent of the total; bessemer, 0.06 per cent; and all other, 3.1 per cent. Corresponding figures for 1926 were: Open-hearth, 96.59 per cent; bessemer, 0.39 per cent; and all other, 3.02 per cent. Open-hearth with a decrease of 12.55 per cent from the preceding year and all other with a decrease of 10.47 per cent made average losses, while bessemer representing a relatively smaller tonnage registered a drop of 87.5 per cent.

In 1926, open hearth increased 15.46 per cent and all other, 15.97 per cent, while bessemer expanded 29.38 per cent. The total production of rails includes, in addition to new rails rolled, rails rerolled from defective rails and from old rails. In 1927 the total rerolled was 92,537 tons, as compared with 106,340 tons in 1926, and 97,034 tons in 1925.

Mills engaged in rolling or rerolling rails totaled 20. Of this number, 15 employed the open-hearth method, 3 the bessemer, and none the electric. Five mills produced renewed or rerolled old rails. According to weight per yard, 161,740 tons of the total rail production was under 50 pounds, 173,257 tons was between 50 and 85 pounds, 539,445 tons was between 85 and 100 pounds, 1,314,424 tons was between 100 and 120 pounds and 617,524 tons was 120 pounds and over.

Alloy-treated rails in 1927 amounted to only 1265 tons, as compared with 4216 tons in 1926 and 4009 tons in 1925. Production of alloy-treated gradually is disappearing. Of the 1927 total, none was treated with titanium, the entire total being treated by other alloys, not specified. In 1926, titanium-treated rails totaled 1009 tons and all other alloys accounted for 3117 tons.

Pennsylvania made 752,312 tons of rails in 1927, or 26.8 per cent of the country's total. In 1926 this state's proportion was 25.8 per cent. Pennsylvania had six of the country's active works, while Alabama was second with three.

Freight rates on scrap in Indiana are unreasonable compared with rates in Illinois, iron and steel interests testified recently at a hearing before the Indiana public service commission. Indiana railroads oppose any reductions.

Malleable Castings Up in February

Washington, April 3.—February production of malleable castings continued on the upgrade, totaling 59,645 tons, according to the department of commerce. Monthly comparisons follow:

	Total tons produced	Per cent of capacity	Total tons booked	†Monthly capacity
1926				
Total	715,384	54.7	607,949	1,307,889
1927				
February	57,382	54.8	58,039	104,686
Total (2 mos.)	108,872	51.8	109,033	210,305
March	66,372	62.2	53,597	106,698
April	59,225	55.8	56,326	106,163
May	57,655	54.1	49,482	106,473
June	58,972	55.3	46,178	106,736
July	48,202	43.9	45,782	104,287
August	51,394	48.6	42,515	105,717
September	45,210	43.3	37,912	104,401
October	46,765	46*	39,494	101,606
November	40,845	40.5	34,624	100,778
December	47,876	47.6	49,215	100,685
(year)	631,388	50.4	564,158	1,253,849
1928				
January	54,818	59.6	53,153	92,015
February	59,045	63.8	55,452	92,498
Total (2 mos.)	113,863	61.7	108,605	184,513

†Capacity during 1927 has been based on following formula: "Total number of units of molding floor space, times average production per molder per day per unit of floor space, times number of actual working days per month." Beginning January, 1928: "Average monthly production for the best six consecutive months since Jan. 1, 1919, is to be taken as a practical monthly capacity."

Ohio River Traffic Up

Pittsburgh, April 3.—Iron and steel shipments over the Ohio river in February totaled 87,635 tons, compared with 69,750 tons in January. Allegheny river iron and steel shipments in February totaled 385 tons, against 330 tons in January. February Monongahela river shipments reached 73,360 tons, or 4709 tons under January.

The Texas Jobbers Hardware association will conduct its thirty-third annual convention at the Rice hotel, Houston, Tex., April 13-14. LeRoy B. Everett, Bering-Cortes Hardware Co., Houston, is secretary of the association.

Foundry Equipment Off

Cleveland, April 3.—Orders for foundry equipment in February declined, the report of the Foundry Equipment Manufacturers' association shows. Following are monthly comparisons, the base of the index being average monthly shipments for 1922-24:

	1925	1926	1927	1928
Jan.	104.2	168.2	180.4	*132.7
Feb.	108.8	154.9	198.0	123.6
Mar.	159.3	157.3	131.1	.....
Apr.	124.3	113.2	130.0	.....
May	113.3	128.5	134.8	.....
June	110.5	133.5	138.4	.....
July	117.0	127.3	89.9	.....
Aug.	190.0	141.2	106.4	.....
Sept.	94.2	114.0	80.4	.....
Oct.	139.5	140.5	98.0	.....
Nov.	180.3	133.4	95.8	.....
Dec.	140.1	181.0	106.8	.....

Base: Average monthly shipments for 1922-23-24.
*Revised.

Furniture Orders Gain

Washington, April 3.—February orders for steel furniture totaled $3,295,861, making a substantial gain over January, according to the department of commerce. Following are comparisons:

	Business Group		Shelving	
1926	Orders received	Shipments	Orders received	Shipments
Total	31,393,171	31,429,140	7,340,351	7,837,017
1927				
Feb.	2,771,477	2,686,419	657,833	607,622
March	3,021,915	3,080,931	689,964	690,783
April	2,750,877	2,849,536	621,888	677,745
May	2,381,369	2,528,672	686,144	585,397
June	2,369,244	2,519,512	638,485	657,927
July	2,091,804	2,040,209	534,592	564,744
Aug.	2,381,889	2,474,854	592,353	604,107
Sept.	2,367,857	2,218,602	607,905	531,154
Oct.	2,410,552	2,379,557	551,259	619,293
Nov.	2,476,230	2,856,181	574,763	590,764
Dec.	2,850,314	2,740,602	619,276	577,910
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999

Construction of a wire mill is planned by the Sheffield Steel Corp., Kansas City, Mo., with a stock issue of $1,250,000, recently authorized.

Production of Rails by Processes

Years	Open-hearth	Bessemer	Rerolled*	Electric	Total
1912	2,105,144	1,099,926	119,390	3,455	3,327,915
1913	2,527,710	817,591	155,043	2,436	3,502,780
1914	1,525,851	323,897	95,169	178	1,945,095
1915	1,775,168	326,952	102,083	.....	2,204,203
1916	2,269,600	440,092	144,826	.....	2,854,518
1917	2,292,197	533,325	118,639	.....	2,944,161
1918	1,945,443	494,193	101,256	.....	2,540,892
1919	1,893,250	214,121	96,422	50	2,203,843
1920	2,334,222	142,899	126,698	297	2,604,116
1921	2,027,215	55,559	96,039	5	2,178,818
1922	2,033,000	22,317	116,459	.....	2,171,776
1923	2,738,779	25,877	139,742	118	2,904,516
1924	2,307,533	16,069	109,730	.....	2,433,332
1925	2,691,823	9,687	83,747	.....	2,785,257
1926	3,107,992	12,533	97,124	.....	3,217,649
1927	2,717,865	1,566	86,959	.....	2,806,390

*Rerolled from old steel rails.

Machinery

March Business Proves Better Than in February—Second Quarter Prospects Appear Good—Crane Orders Show Little Gain

BROADLY speaking, March orders for machine tools and shop equipment proved better than those for February. The increase, however, was not large. Automotive business, which recently has been rather slack, apparently has recovered to some extent for scattered orders indicate a sizable volume. Railroad sales did not come up to expectations, but it is reported that several good inquiries are about to be issued this month. General manufacturing lines are providing by far the greater proportion of the going business. Inquiries no longer constitute a guide to activity, as much of the purchasing is more or less of a spot nature. Individual orders are small, usually calling for one or two units. Used machinery is moving well. Crane buying is light in spite of fair inquiry.

New York, April 3.—Demand for machine tools is moderately good, and includes several fair-sized orders. A recent buyer has been Theodore Crane, Brooklyn, who closed on eight lathes, two radial drills, two or three shapers, a planer and a bolt cutter among other items. This equipment included some used machines, although the lathes, for instance, were all new. Philadelphia Rapid Transit Co., Philadelphia, also is understood to be taking action on a substantial list, including much heavy railroad equipment. A large prospective buyer is the Autocar Co., Ardmore, Pa., which plans numerous improvements over the next few months. Boston & Maine has closed on two engine lathes to an eastern seller, who also is known to have received several orders of late from railroads in the middle west. United States navy yard, Portsmouth, N. H., has purchased a 16 by 60-inch engine lathe from Pratt & Whitney Co. This builder has also been awarded a 61 inch vertical shaper, a bench miller and two 7 by 32-inch bench lathes by an automobile company in the middle west, and a 13 by 30-inch lathe by a company in Syracuse, N. Y. The department of water and power, Los Angeles, has purchased an 800-pound single-frame steam hammer from the Niles Tool Works, which has also booked a 7-inch grinder from the Pratt & Whitney Aircraft Co. and a 36 by 44-foot lathe from a Connecticut company. Crane buying continues sluggish, although substantial inquiry is pending.

Worcester, Mass., April 3.—Machine tool buying is still largely confined to single tools but continues well spread and the total volume is generally considered satisfactory. First quarter business was well ahead of last year with the exception of textile machinery. There is a steady demand for lathes of various sizes and types, while grinding machinery makers are also booking a steady volume. The metalworking industry is taking more equipment and inquiry from this branch is rather brisk. Automotive buying is also holding surprisingly well. Auction sales of used machinery have weakened the dealers' market—a fair-sized list of lathes, drills, presses and textile machinery having been sold lately at ridiculously low figures. Machinery finding its way to export channels in New England is fairly large.

Pittsburgh, April 3.—Machine tools are fairly active as far as numbers of orders are concerned, although individually these orders do not comprise more than one or two items. One dealer sold a motor-driven pipe machine, four electric drills up to 1-inch, several chucks and a quantity of miscellaneous equipment last Friday, making up the best day of the week. Action on the Westinghouse Electric & Mfg. Co. list probably will not take place until the middle of April. Most manufacturers seem to be fighting shy of large expenditures for equipment. A number are taking a longer time than usual to decide upon crane purchases. Timken Roller Bearing Co. is understood to be closing on nine cranes, but Wheeling Steel Corp., Pittsburgh Plate Glass Co., Weirton Steel Co., Carnegie Steel Co. and others still defer action.

Chicago, April 3.—Despite a lack of some of the expected important railroad inquiry, the volume of machine tool business in March for this district shows a gain of about 10 per cent over February. The outlook for the second quarter is promising, as it is understood a number of the western railroads are about to issue inquiries. Reports are that the farm implement works will do some additional buying, and that several of the tractor manufacturers, including a caterpillar tractor manufacturer at Peoria, Ill., may be in the market later. Union Pacific is inquiring for a 32-inch shaper, several grinders and lathes, but these orders will not be closed in the Chicago district. The Oregon Short Line also is seeking bids on several items. Santa Fe is expected to start buying against its list soon. Duluth Missabe & Northern will purchase two lathes, a flue welder and a bolt forger within the next few days. Sales during the week, in scattered individual lots to industrial consumers, were fairly numerous. Inquiry from industrial sources is active. Prices are reported to be holding well.

Cleveland, April 3.—Prospects for business in this territory appear the best for any time this year. March sales reached levels which in most cases surpassed February. This applied to both dealers and manufacturers. The business has been well spread out, and embraces the automotive industry as well as general manufacturing industries. Inquiries are not heavy but the experience of the year proves that this is not a definite indication of conditions. Demands for equipment arise quickly and orders are signed without delay. Dealers are able to give good deliveries.

CRANE ORDERS PLACED

Twenty-five ½-ton 2-motor hoists for Campbell Soup Co., Camden, N. J.; to unnamed builder.

Two handpower overhead cranes, including one 5-ton and one 2-ton, for Isadore Laurer, stone worker, New York; to New Jersey Foundry & Machine Co.

Two 2-ton handpower cranes for Queensboro Gas & Electric Co., Long Island, N. Y.; to New Jersey Foundry & Machine Co.

Two crawler cranes, each equipped with 100-foot boom, for a company in Brooklyn, N. Y.; to Harnischfeger Corp.

Two 10-ton cranes for Danville Structural Steel Co., Danville, Pa.; to Northern Engineering Works.

Among single orders were: 8-ton handpower crane, placed through a New York exporter for shipment to South America, with New Jersey Foundry & Machine Co.; 25-ton crane placed through F. L. Smidth, New York, for Olympic Portland Cement Co. for installation at a plant along Pacific Coast, with Whiting Corp.; 10-ton electric crane for Lukens Steel Co., Coatesville, Pa., to Niles Crane Corp.

CRANE ORDERS PENDING

Nine cranes for Timken Roller Bearing Co., Canton, O., including one 165-ton ladle, one 5-ton floor charger, one soaking pit charger, one 30-ton mill-type, one 15-ton crane with two hooks, two 15-ton mill-type and two 4-ton jib crane; pending.

Five 5-ton overhead electric cranes for Textile Foundry Machine Co., Reading, Pa.; pending.

Two 200-ton electric cranes for Wheeling Steel Corp.; Wheeling, W. Va.; pending.

Several crawler cranes, the number yet to be determined, for Dwight P. Robinson & Co., New York; contemplated.

10-ton handpower crane for Honolulu Iron Works, New York; bids asked.

Traveling crane for Great Northern railway, Wenatchee, Wash.; pending.

Ore Mine, Stack, Down

New York, April 3.—Due to a large accumulation of iron ore, the mine of the Chateaugay Ore & Iron Co. at Lyon Mountain, N. Y. ,has been shut down, probably until July. The company's blast furnaces at Standish, N. Y., will go out of blast at the end of April. A small steel casting plant now under construction will be completed next month.

Forging Shops Busy

Worcester, Mass., April 3.—Forging shops in central Massachusetts are operating at capacity, as a rule, with heavy orders from the automotive industry. Pressed steel demand also is brisk.

1927 Pig Iron Down 7 Per Cent

American Iron and Steel Institute Places Official Production at 36,565,645 Gross Tons—Pig Iron Drops but Ferroalloys Gain

PIG iron and ferroalloys produced in the United States in 1927 totaled 36,565,645 gross tons, according to official figures just announced by the American Iron and Steel institute. This total was 2,807,084 tons, or 7.13 per cent, less than the 39,372,729 tons made in 1926, and was the lowest annual production since 1924, when the output was 31,405,790 tons. The record tonnage was 40,361,146 tons in 1923, with the 39,434,797 tons of 1916 second. Third place was taken by 1926.

Of the grand total of pig iron and ferroalloys, 35,858,232 tons was pig iron and 707,413 tons was ferroalloys. The corresponding figures for 1926 were 38,698,417 tons and 674,312 tons, respectively. Pig iron dropped 7.34 per cent while ferroalloys gained 4.91 per cent. Comprising the pig iron was 19,357,064 tons of basic; 9,105,915 tons of bessemer and low-phosphorus; 5,504,419 tons of foundry; 1,699,583 tons of malleable; 144,532 tons of forge; and 46,719 tons of all other. On a percentage basis, as compared with 1926, basic decreased 8.56 per cent; bessemer and low-phosphorus, 9.32 per cent; foundry, 0.05 per cent; forge, 33.17 per cent; and all other, 43.4 per cent. Malleable, however, increased 1.05 per cent.

Production of ferroalloys consisted of 293,626 tons of ferromanganese; 100,720 tons of spiegeleisen; 278,277 tons of ferrosilicon and 34,790 tons of all other ferroalloys. On a percentage basis, ferromanganese decreased 7.92 per cent; while spiegeleisen increased 32.15 per cent.

Of the total production of pig iron, Pennsylvania made 11,466,457 tons, or 31.98 per cent; Ohio, 8,407,243 tons, or 23.45 per cent; Indiana and Michigan, 4,199,517 tons, or 11.71 per cent; Illinois, 3,588,463 tons, or 10.01 per cent; and Alabama, 2,758,387 tons, or 7.69 per cent.

According to compilations made by the institute, 9,494,087 tons of the country's total pig iron and ferroalloy production was made for sale and 27,071,558 tons was for the maker's use. This represented a proportion of 25.9 per cent merchant and 74.1 per cent nonmerchant. The corresponding figures for 1926 were 24.6 per cent merchant. The corresponding figures for 1926 were 24.6 per cent merchant and 75.4 per cent nonmerchant.

On the basis of fuel used, 35,693,663 tons of the pig iron was made with coke and 164,569 tons by charcoal. No iron was made with anthracite, this fuel having been used last in 1923. Production of the 707,413 tons of ferroalloys was not classified according to fuel used, however, this tonnage represented all ferroalloys made in blast furnaces or electric furnaces. Coke pig iron represented 99.6 per cent of the total. The corresponding ratios for 1926 and 1925 were 99.7 and 99.5 per cent.

Charcoal pig iron, which in 1927 amounted to 164,569 tons, was an increase 689 tons over the 163,880 tons of the previous year. According to the institute, there were 343 blast furnaces in the country on Dec. 31, and of this number, 169 were producing iron. Coke furnaces number 330, of which 162 were active.

PRODUCTION OF COLD AND HOT AND WARM BLAST CHARCOAL PIG IRON, 1923-1927.

Kinds of pig iron.	1923.	1924	1925.	1926.	1927.
Cold blast	.....	.....	1,014	400	.....
Hot and warm blast	251,177	212,710	195,150	163,480	164,569
Total.....Gross tons	251,177	212,710	196,164	163,880	164,569

PRODUCTION OF PIG IRON BY GRADES AND FERRO-ALLOYS BY KINDS, 1926–1927, SHOWING INCREASE OR DECREASE.

Grades of pig iron and kinds of ferro-alloys.	1927.	Per cent.	1926.	Per cent.	Increase.	Per cent.
Pig iron:						
Basic	19,357,064	53.98	21,168,407	54.70	*1,811,343	* 8.56
Bessemer and low-phos	9,105,915	25.40	10,042,324	25.95	* 936,409	* 9.32
Foundry	5,504,419	15.35	5,506,968	14.23	* 2,549	* .05
Malleable	1,699,583	4.74	1,681,897	4.35	17,686	1.05
Forge	144,532	.40	216,277	.56	* 71,745	*33.17
All other pig iron	46,719	.13	82,544	.21	* 35,825	*43.40
Total pig iron	35,858,232	100.00	38,698,417	100.00	*2,840,185	* 7.34
Ferro-alloys:						
Ferro-manganese	293,626	41.50	318,891	47.29	* 25,265	* 7.92
Spiegeleisen	100,720	14.23	76,215	11.30	24,505	32.15
Ferro-silicon	278,277	39.33	245,605	36.43	32,672	13.30
All other ferro-alloys	34,790	4.94	33,601	4.98	1,189	3.54
Total ferro-alloys	707,413	100.00	674,312	100.00	33,101	4.91
Grand total	36,565,645	.....	39,372,729	.....	*2,807,084	* 7.13

* Decrease.

PIG IRON AND FERRO-ALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN 1927.

Pig iron and ferro-alloys.	For sale.	For maker's use.	Total. Gross tons.
Pig iron:			
Basic	1,821,977	17,535,087	19,357,064
Bessemer and low-phosphorus	602,944	8,502,971	9,105,915
Foundry	4,913,245	591,174	5,504,419
Malleable	1,563,334	136,249	1,699,583
Forge or mill	68,515	76,017	144,532
White and mottled, direct castings, etc	7,874	38,845	46,719
Total pig iron	8,977,889	26,880,343	35,858,232
Ferro-alloys:			
Ferro-manganese	103,683	189,943	293,626
Spiegeleisen	99,580	1,140	100,720
Ferro-silicon	278,277	.....	278,277
All other ferro-alloys	34,658	132	34,790
Total ferro-alloys	516,198	191,215	707,413
Total pig iron and ferro-alloys	9,494,087	27,071,558	36,565,645

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

OAKVILLE, CONN.—Smith Seymour & Son Inc., manufacturer of hardware, has awarded the contract for a 2-story plant, 50 x 150 feet. (Noted March 22.)

BOSTON—Edison Electric Co. has awarded the structural steel contract for a power station to the New England Structural Co.

BOSTON—General Heel Corp. has been incorporated with $100,000 capital to manufacture metal heels, machinery, etc., by C. E. Whitney.

BOSTON—Motor Safety Indicator Inc. has been incorporated with $25,000 capital to manufacture and deal in motor safety devices and accessories by Richard H. Lenkeith, 1370 Commonwealth avenue.

MARLBOROUGH, MASS.—Johnson-Claflin Inc. has been incorporated with $60,000 capital to manufacture and deal in metal products and machinery, by William B. Spooner Jr., 37 Luzon avenue, Providence, R. I.

SOMERVILLE, MASS.—R. D. Lurvey Corp. has been incorporated with 200 shares no par value stock to manufacture and deal in accessories and parts for motor construction, by Roy D. Lurvey, 1526 Commonwealth avenue.

CAMDEN, N. J.—Concrete Steel Co. plans to build two 1-story shop additions.

JERSEY CITY, N. J.—Eastern Steel Barrel Corp. has been incorporated with 1000 shares no par value stock to manufacture barrels by Corporation Trust Co., Jersey City.

JERSEY CITY, N. J.—North Easton Shovel Co. has been incorporated with 40,000 shares no par value stock, to manufacture and deal in farm implements, by Corporation Trust Co., Jersey City.

BINGHAMPTON, N. Y.—Fairbanks Co., manufacturer of valves, plans to rebuild that part of its plant damaged by a recent fire.

BUFFALO—S. B. Whistler & Sons Inc., 1459 Niagara street, plans to build a 1-story plant addition, 40 x 180 feet, for the manufacture of tools, dies, etc.

NEW YORK—Merritt Electric Floor Machine Co. has been incorporated with $10,000 capital by G. W. Allen, 149 Broadway, attorney.

NEW YORK—R. Hoe & Co., 504 Grand street, manufacturer of printing presses, saws, etc., contemplates building a 2-story plant addition at Dunellen, N. J.

NEW YORK—Economy Combustion Engineering Corp. has been incorporated with $50,000 in preferred shares and 5000 shares no par value stock to manufacture and deal in heating appliances, by G. F. Lewis, 37 Wall street, attorney.

BRISTOL, PA.—Pacific Steel Boiler Co., Muskegon, Mich., plans to build an addition to its manufacturing plant here, expected to double the present capacity.

PHILADELPHIA—Richmond Machine Co., Richmond and Wansley streets, has awarded contracts for a machine shop to N. Hoffman, 1924 East Monmouth avenue.

PITTSBURGH—Mayer Body Corp., 6461 Frankstown avenue, manufacturer of automobile bodies, has awarded the general contract for a 1-story plant addition to Conley & Demley, 127 North Highland avenue.

VERONA, PA.—Allegheny Metal Products Co., 1902 Brighton road, Pittsburgh, plans to remodel a garage for use as a new plant.

WOODLAND, PA.—Jones & Laughlin Steel Corp. has awarded the contract for reinforcing bars for its seamless tube mill to Truscon Steel Co.

West Central

DES MOINES, IOWA—Chicago, Rock Island & Pacific railroad, 149 West Jackson boulevard, Chicago, will build new roundhouse and shops in East Des Moines.

WATERLOO, IOWA—John Deere Tractor Co. has awarded the contract for a 1-story plant addition, 120 x 120 feet.

LIBERAL, KANS.—Liberal Machine Shop is building a new building 40 x 80 feet, on newly acquired property.

ST. PAUL—Northern States Power Co., Robert F. Pack, vice president and general manager, Minneapolis, will install a 15,000-volt transformer in the High Bridge plant.

ST. PAUL—Healy-Ruff Co. has been incorporated with $50,000 capital by Dennis L. Healy and others, to manufacture heating and plumbing supplies, specializing in radiator hangers.

CLAYTON, MO.—National Electric Rabbit Co. has been incorporated to manufacture a mechanical device by John Gleason Jr., 4528 A Flora building.

ST. LOUIS—Sphinx Electrical Mfg. Co., plans to build a new plant near Columbia, Mo., for the manufacture of electric storage batteries.

ST. LOUIS—Kaysing Iron Works, 2525 Montgomery street, plans to build a 1-story plant addition.

ST. LOUIS—Spuck Iron & Foundry Co.,

Resale Equipment News

HYDRAULIC STEEL CO. property at Cleveland has been sold to Truscon Steel Co., Youngstown, O., on its bid of $1,000,000. A higher bid was rejected because the court believed security for creditors was not sufficient. The Truscon bid was cash. The sale terminates a receivership which began in October, 1923. Creditors will receive 34 cents on the dollar. The purchaser will add to the plant and operate it at capacity.

* * *

Richard L. DeCou Co., Philadelphia, has bought at auction the plant of Gehret Bros., Norristown, Pa. The new owner will continue production of structural steel and ornamental iron.

* * *

Jewel Coal Co., Duquoin, Ill., has been sold by Master in Chancery Eichhorn for approximately $90,000, the amount of the bonded indebtedness. The property was bid in by representatives of the Midland Coal Co. of Chicago.

Sales Calendar

April 3—Plant and equipment of Bilton Machine & Tool Co., Bridgeport, Conn., to be sold at public auction by the receiver.

April 7—Blast furnace and iron ore properties of Process Iron Corp., Glen Wilton, Va., at receiver's sale.

April 10—Auction of land, buildings and equipment of William Hamilton & Sons Car Co., Newark, O.

May 3—Property of American Refining Co., Wichita Falls, Tex., at receiver's sale.

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51⅓ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45 to 55 per cent iron and 6 to 8 per cent manganese	10.00 to 10.50
North African low phosphorus	nominal
Swedish foundry or basic, 65 per cent	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	8.50 to 9.00
Newfoundland foundry, 55 per cent	9.00 to 9.50

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$14.50 to 15.00
Washed gravel, imported duty paid eastern tidewater, per net ton	15.50 to 16.00

Fourteenth and Branch streets, has increased its capital stock from $25,000 to $150,000.

ST. LOUIS—Davis Boring Tool Co. has been incorporated by John J. Larkin, 615 North Twenty-fourth street.

ST. LOUIS—Superior Oxy-Acetylene Co. will establish itself in a newly acquired building at Kingshighway and Connecticut street.

ST. LOUIS—Midwest Piping & Supply Co., 1452 South Second street, manufacturer of pipe fittings, etc., plans to build a 2-story plant addition.

ST. LOUIS—Carter Carburetor Co., 2838 North Spring avenue, has awarded the contract for an addition to the Fruin-Colnon Contracting Co., 502 Merchants-Laclede building.

HASTINGS, NEBR.—Jaden Mfg. Co., F. Jaden, president, manufacturer of hardware, has awarded the contract for a 1-story plant, 120 x 250 feet.

FARGO, N. DAK.—Dayton Hollow plant of the Otter Tail Power Co. will undergo changes, including the installation of a generator, governors and water wheels. The Jamestown, N. Dak., plant plans the installation of several new boilers.

ANTIOCH, ILL.—Corona Pen Co., 134 North LaSalle street, Chicago, has awarded the general contract for rebuilding the part of its plant here damaged by a recent fire, to Treesman Construction Co., Burlington, Iowa. (Noted March 15).

CHICAGO—Chicago Bridge & Iron Works, 1305 West 105th street, plans to build a plant addition, 100 x 200 feet.

CHICAGO—Western Architectural Iron Co., 211 West Schiller street, has awarded the contract for a 1-story plant, 100 x 132 feet, to be built at 3451 Elston avenue.

CHICAGO—Michigan Mfg. Corp., 931 North Kilpatrick street, has been incorporated with 120,000 shares no par value stock to manufacture and deal in machinery and goods, by Robert V. Jones, Hubert Vanhook and Raymond H. Schultz.

CHICAGO—Majestic Radio Corp., 134 North LaSalle street, room 918, has been incorporated with $1000 capital to manufacture and deal in radios, parts, and accessories, by Beth Wolan, Katherine Kelly and Jack N. Pritzker.

CHICAGO—Leslie F. Muter Co. has started work on its 2-story plant to be used solely for the manufacture of radio parts. The building is located at South Chicago avenue and Eighty-fifth street.

EAST ST. LOUIS, ILL.—Mississippi Valley Structural Steel Co. has received the contract for structural steel for the plant of the American Zinc Co.

ROCKFORD, ILL.—Ornamental Brass Shop, Tenth street and Tenth avenue, plans to build a plant addition for the manufacture of hardware, brass and aluminum castings, etc.

ROCKFORD, ILL.—Rockford Organ Co., R. J. Bennett, Rock Island, Ill., president, will receive bids shortly on a 1-story plant and office building.

SOUTH CHICAGO, ILL.—Federal Furnace plant of By-Products Coke Corp. has awarded the structural steel contract for its boiler house and substation to Worden-Allen Co.

ANDERSON, IND.—Indiana Bridge Co. has been awarded the contract for structural steel for a plant for Remy Electric Co.

CONNERSVILLE, IND.—Auburn Motor Co. has awarded the contract for a new plant.

FT. WAYNE, IND.—International Harvester Co., Chicago, has awarded the contract for structural steel for its construction work to Rochester Bridge Co.

INDIANAPOLIS—Western Oil Co., 312 North Meridian street, has awarded the contract for a machine shop to be built at Layman and East Washington streets.

VALPARAISO, IND.—Indiana Steel Products Co. plans to build a plant addition, 42 x 92 feet.

BAY CITY, MICH.—Chevrolet Motor Co. has awarded the structural steel contract for a plant to Flint Structural Steel Co.

DETROIT—Huron Forge & Machine Co., 9041 Alpine avenue, is inquiring for machine shop equipment, including a press.

DETROIT—Manufacturers' Steel Supply Co., 2162 Clay avenue, plans to install a power press and other equipment.

DETROIT—Chevrolet Motor Car Co. has awarded the general contract for its forge shop, 80 x 400 feet, to Everett Winters Co., 1651 East Grand boulevard. (Noted March 15).

DETROIT—Chrysler Corp. has awarded the general contract for a 1-story addition to A. W. Kutsche, 2111 Woodward avenue. (Noted March 22).

DETROIT—Wise Chrome Products, M. M. Wise, 811 Bedford road, president, has awarded the contract for a 1 and 2-story plant to H. G. Winter, 159 East Elizabeth avenue, Detroit. (Noted March 22.)

DETROIT—Superior Seal & Stamp Co., 151 East Jefferson avenue, C. C. Zabriskie, president, has awarded the general contract for a 2-story plant to Carl S. Barry Co., 2631 Woodward avenue. (Noted Feb. 23.)

DETROIT—Detroit Gray Iron Foundry Co., 6403 Wight street, has awarded the contract for a 1-story rear addition to its plant, to P. H. Piper, Michigan Theater building. (Noted Feb. 16.)

DETROIT—Commonwealth Brass Co., 6781 Commonwealth avenue, is inquiring for machine equipment for manufacturing small brass castings, etc., for the addition planned for its plant.

GRAND RAPIDS, MICH.—Liberman & Gittlen Metal Co., 322 Front street, plans to build a 1-story addition to be used largely for storage and distribution.

SAGINAW, MICH.—Saginaw Malleable Iron Works is inquiring for machinery and equipment for finishing castings for the proposed 1-story foundry and plant, 80 x 90 feet and 80 x 110 feet, to be built on Florence avenue.

ALLIANCE, O.—Enameled Sanitary Co. will establish its plant here, taking over the foundry building of the Buckeye Jack Co.

CANTON, O.—Timken Roller Bearing Co., Deuber avenue southwest, has awarded the contract for four plant units. (Noted Jan. 19.)

CINCINNATI—Gruen Watch Co., Iowa and McMillan streets, has awarded the contract

for a 1-story plant addition to Lehigh Construction Co., Newport, Ky.

CLEVELAND—Gottlieb Barrel Co., 6809 Beaver avenue, was badly damaged by fire March 27.

CLEVELAND—Acme Auto Radiator Co., J. T. Bares, 7707 Carnegie avenue, manager, plans to build a 2-story plant, 36 x 175 feet.

CLEVELAND—Scott & Fetzer Co., G. H. Scott, 11401 Locust avenue, president, manufacturer of vacuum cleaners, etc., plans to build a 2-story plant addition 40 x 60 feet.

CLEVELAND—North American Mfg. Co., 8918 Frederick avenue, manufacturer of oil burners, has awarded the contract for a 1-story plant, 40 x 120 feet, to be built at 2910 East Seventy-fifth street.

CLEVELAND—Gustav Schaefer Wagon Co., 4180 Lorain avenue, suffering damage by fire a few months ago, has awarded the contract for rebuilding its plant to George Rutherford Co. W. S. Lougee, Marshall building, is designing architect.

CLEVELAND—Hotstream Heater Co., Richmond avenue and Wheeling & Lake Erie railroad, has acquired new property from the Bassick Mfg. Co. at 7800 Finney avenue southeast. The Heater company will operate both plants and will have its offices in the Finney avenue plant.

COLUMBUS, O.—Architectural Iron & Wire Co. has been incorporated with 500 shares no par value by Milton G. Rice, Cree Sheets and Charles A. Schwenker.

COLUMBUS, O.—Seagrave Corp., 2000 South High street, manufacturer of fire engines and equipment, is inquiring for machinery and equipment including grinding machinery, lathes, drill presses, etc., for the plant addition now under construction.

MASSILLON, O.—Central Alloy Steel Corp. has awarded the structural steel contract for miscellaneous work at its plant to the Massillon Bridge & Structural Co.

NEWTON FALLS, O.—General Pressed Steel Co., recently organized, has begun construction on a plant for the manufacture of stamped steel products. Harry Schaab is general manager of the company.

PORTSMOUTH, O.—Vulcan Last Co., manufacturer of iron shoe lasts, contemplates building a branch plant at Brockton, Mass.

YOUNGSTOWN, O.—Structural steel for a building for the Youngstown Sheet & Tube Co. has been awarded to the Pittsburgh-Des Moines Steel Co. (Noted March 15).

WEIRTON, W. VA.—Weirton Steel Co.'s coke plant laboratory office building was damaged by a recent fire.

CLINTONVILLE, WIS.—Atlas Engineering Co. has been incorporated with $125,000 capital by H. W. Zimmerman and Neal P. Conway to manufacture concrete mixers.

FREMONT, WIS.—Ernest Sader, hardware and automobile dealer, will build a general service and machine shop, 42 x 80 feet, as an addition to the present store and garage.

MILWAUKEE—Interstate Drop Forge Co., Twenty-seventh street and Capitol drive, will build a 1-story brick and concrete addition, 50 x 100 feet, to be used for manufacturing and additional office space. C. E. Stone is president.

MILWAUKEE—H. Barkow & Co., 179 Milwaukee street, manufacturers of automobile and truck bodies, metal products, etc., will supplant their present factory with a new 2-story shop, 60 x 120 feet. H. Schmitt & Son, 14 Burleigh street, have taken the general contract.

MILWAUKEE—A charter has been granted to the American Gas Generator Co., Milwaukee, to manufacture and market machinery and equipment, especially gas generators, fixtures, stoves, etc. The capital stock is $50,000. Incorporators are Frank J. Ramler, Daniel Cannon and L. A. Thompson.

RACINE, WIS.—National Machine Tool Co. has increased capital stock from $20,000 to $100,000.

RACINE, WIS.—Gedemer Tool & Machine Co., 1920 Taylor avenue, has deferred for the present its intention of building a new plant or an addition to its present shop. It is likely, however, that work will start early in 1929. William Gedemer is president and manager.

Southern States

MUSKOGEE, OKLA.—Muskogee Iron Works has increased capital from $125,000 to $150,000, contemplating expansion and increased production. (Noted March 15).

OKLAHOMA CITY, OKLA.—Oklahoma City Brass Pipe Co. is inquiring for machinery and equipment for a proposed 1-story foundry to be built on Seventh street.

TONKAWA, OKLA.—U. & I. Boiler & Machine Works has been incorporated with $50,000 capital by G. W. Larabee, J. W. Duncan and Mrs. G. W. Larabee to operate machine shop for repair of oil field equipment.

TULSA, OKLA.—Braden Steel Corp. has been incorporated with $200,000 capital, chartered by R. H. Bartlett, W. R. Braden and J. C. Bartlett to handle steel business of Braden Co.

TULSA, OKLA.—L. M. Robinson, manager AI Packer Co., announces lease on new building at 424 North Cincinnati street, to include machine shop for reservicing of oil field packers.

TULSA, OKLA.—Big Four Foundry Co., A. N Porter, president, has acquired old American Foundry property, Archer and Frankfort streets, and will manufacture gray iron and nonferrous castings. (Noted March 15).

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality	
Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00
Second Quality	
Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Per Net Ton Chester, Pa. and Baltimore base	
Dead-burned grain magnesite	40.00

CHROME BRICK

Per Net Ton Chester, Pa., and Baltimore base	
9 x 4½ x 2½	45.00

GREENWOOD, S. C.—Aldrich Machine Works, manufacturer of textile machinery, has awarded the contract for rebuilding its plant, 40 x 148 feet, burned recently, to Greenwood Lumber Co. (Noted March 22.)

NASHVILLE, TENN.—Phillips & Buttorff Mfg. Co., manufacturer of stoves, D. W. Binns, Fourteenth avenue and Hamilton streets, president, plans to build a 2-story plant addition.

BRECKENRIDGE, TEX. — Breckenridge Foundry & Supply Co., W. S. Slangerup, president, Mineral Wells, Tex., plans to move the plant to Breckenridge.

CORPUS CHRISTI, TEX.—Corpus Christi Boiler & Machine Works, capital $10,000 has been incorporated by Simon Grossman and J. O. Brouse to operate a machine shop.

CORPUS CHRISTI, TEX.—Corpus Christi Foundry & Machine Co., Black street and West Broadway, has been acquired by San Antonio, Tex., interests and will be known as the Luckett Foundry & Machine Co. H. L. Luckett is manager of the company and improvements are contemplated.

DALLAS, TEX.—Lone Star Gas Co. has started construction of machine shop, 120 x 180 feet, for repair and rebuilding of company cars and trucks. H. Wilson, assistant superintendent of transportation, will be in charge of shop.

HOUSTON, TEX.—Wackman Welded Ware Co., Seventieth and Victor streets, manufacturer of steel oil drums, L. B. Wackman, president, plans to build a new plant.

HOUSTON, TEX.—Oil Center Tool Co., A. J. Penick, manager, plans enlargement of plant for manufacture of oil field tools and specialties. Plant is at 1111 East Twenty-first street.

LULING, TEX.—Gus L. England and associates plan construction of plant for manufacture of plows and agricultural implements.

Western States

LOS ANGELES—R. M. Faliday plans to build a 1-story machine shop, 40 x 140 feet.

OAKLAND, CALIF.—East Bay Iron & Metal

Works has awarded the general contract for rebuilding a part of its plant to Spivock & Spivock, Hobart building, San Francisco. (Noted March 15.)

SAN JOSE, CALIF.—A. Pratt, care of Wolfe & Higgins, Realty building, plans to build a 1 and 2-story machine shop at Sixth and John streets.

PORTLAND, OREG.—Oregon Smelting & Refining Co. has been incorporated with $50,000 capital by G. W. Holcomb, 211 Washington building.

SEATTLE—Westlake Engineering Works will erect a machine shop, 35 x 64 feet, at its plant 2143 Westlake Avenue north.

SEATTLE—Barde Steel Co. will erect three heavy timbered steel warehouses at its local plant, 2709 Utah street. The structures will each be two stories, 37 x 120, 32 x 120 and 67 x 120 feet.

SEATTLE—Great Northern railway is planning a development of its terminals here to include a steel and concrete roundhouse and machine shops. The improvement is contingent on vacation of certain streets.

SPOKANE—Manufacture of aluminum ware kitchen utensils will be started by M. S. Rubens, owner of a local stove and furnace works at West 1009 First Avenue.

SPOKANE—Simplex Mfg. Co. has been incorporated with $999,999 capital by A. L. Hooper, 501 City Hall building, to engage in manufacture of tools, machinery, etc.

TACOMA, WASH.—Wash-Birchfield Boiler Co. will build an addition to its plant on Port of Tacoma property.

Canada

BONNINGTON FALLS, B. C.—The city of Nelson, B. C., is contemplating the installation of an additional unit to its power plant here.

STEWART, B. C.—International Electric Co., plans to build a 2000-horsepower hydroelectric power plant in the Portland Canal district here.

VANCOUVER, B. C.—Reliance Motor & Machine Works Ltd., 1039 Georgia street west, has let contract to the Dominion Construction Co., 509 Richards street, for a machine shop and garage. Building to be 1-story and basement, 100 x 120 feet, reinforced concrete construction. S. A. Lake is engineer.

VANCOUVER, B. C.—Cork Province Mines Ltd. has let contract to Bartholomew, Montgomery & Co., for the installation of a hydroelectric plant. Company also proposes to install considerable other machinery and equipment in its milling plant here.

SEVEN SISTERS FALLS, MAN.—Winnipeg Electric Co., Winnipeg Electric Chambers, Winnipeg, Man., is having plans prepared for the construction of a power development plant here. Work will include the construction of power plant, transmission line and spur railway 14 miles long.

WINNIPEG, MAN.—Manitoba Bridge & Iron Works Ltd., Logan avenue, has awarded the contract to Carter-Hall-Aldinger Co. Ltd., Royal Bank building, for addition to its plate shop at the corner of Logan and Arlington avenues. Building to be steel and brick construction, 1 story, 60 x 71 feet.

GUELPH, ONT.—Peerless Machine Co. has awarded contract to D. M. Barclay, 24 Melville street, for a plant on Duke street. Building to be 1-story and basement, 30 x 32 feet, brick construction. D. B. Gordon, 490 Mary street is architect.

HAMILTON, ONT.—Shamrock Metalware Ltd. is inquiring for machinery and equipment for the manufacture of galvanized household articles, pails, tubs, etc., for its plant.

KINGSTON, ONT.—Hagerman's Ltd. has been incorporated to manufacture automobiles, tractors, farm machines and implements, with $40,000 capital by Thomas D. Slater, John C. W. Broom and Harry A. Stewart.

LONDON, ONT.—Machine & Tool Co. Ltd. has been incorporated to carry on the business of iron founder, mechanical and electrical engineer and manufacturer of machinery, tools, etc., with $40,000 capital by John M. Gunn, George Gunn, and Stewart L. Gunn.

MORRISBURGH, ONT.—The shop of the Morash Foundry on March 24 sustained considerable loss by fire.

OTTAWA, ONT.—Ellacot's Ltd. has been incorporated to carry on the business of electrical manufacturers, with $40,000 capital by James Albert Ellacot, Russell R. Ellacot and Wilfred Desmarais.

TORONTO, ONT.—General Electric Devices Ltd. has been incorporated to manufacture and deal in electric machinery, supplies, and devices with $100,000 capital by John M. Van Atter, Jacob Winters, and Charles S. Spratt.

TORONTO, ONT.—J. S. Innes Ltd. has been incorporated to manufacture and deal in engines, boilers, power plants and equipment with $100,000 capital by Charles D. Power, Antoine Lemieux and Joseph Power.

TORONTO, ONT.—King Automotive Parts Ltd. has been incorporated to manufacture and deal in automobile parts, etc., with $15,000 capital by Norman Somerville, Frederick A. A. Campbell, and Wilfred L. Hiltz.

TORONTO, ONT.—Airways Ltd. has been incorporated to manufacture and deal in all kinds of apparatus, machinery, plant, mechancial and electrical appliances with $50,000 capital by Hamilton J. Stuart, Alexander M. Garden, and McGillivary Aylesworth.

TORONTO, ONT.—Saddlery Sales Co.,Ltd. has been incorporated to manufacture and deal in saddles, hardware, agricultural implements and machinery, with 25,000 shares no par value stock by Roland O. Dalaly, Harold E. Manning, and Earl E. Thistle.

TORONTO, ONT.—Sully Brass Foundry Ltd., which recently purchased the Bigley Foundry on Wabash avenue, plans improvements and the installation of new machinery and tools. Two machine shops on the Wabash avenue site that have not been operating for two years will be reopened at once by the new owners.

TORONTO, ONT.—Page-Hersey Tubes Ltd., 100 Church street, which recently took over the plant of the Baldwin Canadian Steel Corp. on Ashbridges Bay, here, will enter into the manufacture of wrought iron and steel welded pipe, etc. The company is in the market for considerable new machinery and equipment for new plant.

New Trade Publications

WRENCHES—Husky Wrench Co., Milwaukee, has issued a catalog of its wrenches and other products, illustrated and containing tables of sizes and other specifications.

POWER TRANSMISSION—Akron Belting Co., Akron, O., has issued a bulletin listing types of belts for various power uses. Specialties connected with the service of leather belts are also featured.

FUEL FEED—A current bulletin by the Wellman-Seaver-Morgan Co., Cleveland, features its mechanical double-bell fuel feed for use on gas producers. It is illustrated and operation is explained in detail.

SUPERHEATERS—A booklet by the Superheater Co., New York, is devoted to superheaters for power plants. Service of the industrial department of the company is also analyzed and its benefits pointed out.

VARIABLE SPEED TRANSMISSION—Reeves Pulley Co., Columbus, Ind., has issued a bulletin calling attention to changes in its variable speed transmission. It is illustrated. A new catalog of the company's products also has been completed.

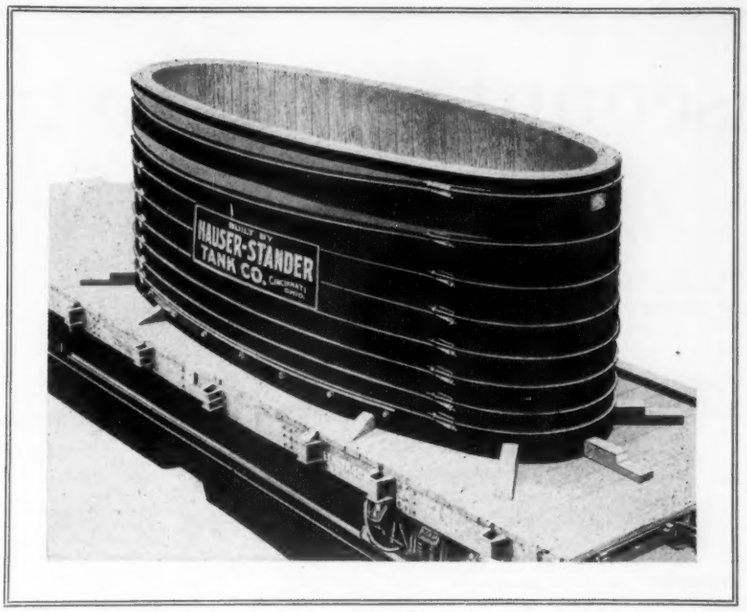
PULVERIZERS—Centripact Pulverizer Corp., Denver, in a current bulletin illustrates its pulverizer, which reduces hard materials by impact and attrition. Details of the machine and illustrations showing it assembled make clear its construction and operation.

ELECTRIC PRECIPITATION—General Electric Co., Schenectady, N. Y., is issuing a catalog of electrical equipment for use with the Cottrell precipitation process for elimination of dust and smoke in industrial plants. A bibliography of the theory of electrical precipitation is included.

ELECTRICAL FURNACES—Ajax Electrothermic Corp., Trenton, N. J., has issued a bulletin on its motor generator type furnaces and equipment. It goes into the history of electric melting, outlines the principles of operation and shows details of construction and operation.

SCREW THREAD COMPARATOR—Jones & Lamson Machine Co., Springfield, Vt., shows in a current bulletin how this device compares the threads of a screw with a master thread and tells exactly how it will fit the threads of the hole in which it is to be placed. Its use greatly increases accuracy of threads.

ELECTRIC POWER—A reprint of an article on "Generated vs. Purchased Electrical Energy," is being circulated by H. O. Swoboda Inc., consulting engineer, Pittsburgh. It gives an instance of economy in a centralized steam heating and power plant for supplying a group of public schools.



Extra Service TANKS

HAUSER-STANDER Tanks have been leaders in durability for over fifty years. During this period we have developed and improved our construction—and today we offer wooden tanks as near perfect as long experience and human skill can make them.

All the lumber is cut to our special specifications and each tank is mechanically correct. No tanks are carried in stock.

Our Engineers will be glad to assist you in solving your pickling tank problems—*no obligation.*

The Hauser-Stander Tank Co.
Cincinnati, Ohio

"WE WIN WITH QUALITY"

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. These preferentials increased by one extra 5 per cent in meeting competition.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 5 on black and 1½ and 5 on galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of one 10 to two 10's and one 5 now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot, .20c

Plates ordered 7.65 pounds per square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B.	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charles for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extra

Under 5 feet to 3 feet inclusive....	.10c
Under 3 feet to 2 feet inclusive.....	.25c
Under 2 feet to 1 foot inclusive.....	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive....	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c